Western and Central Pacific Fisheries Convention
Preparatory Conference

Draft
Final Report of the Preparatory Conference

Volume III

Working Papers

November 2004

Working Papers

Content

Following is a complete listing of official documents of the Preparatory Conference issued to date:

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WCPFC/PrepCon/WP.1/Rev.2	Draft Rules of Procedure of the Commission	1 October 2002
WCPFC/PrepCon/WP.1/Rev.3*	Draft Rules of Procedure of the Commission	4 April 2003
WCPFC/PrepCon/WP.1/Rev.4	Draft Rules of Procedure of the Commission	6 August 2003
WCPFC/PrepCon/WP.1/Rev.5	Draft Rules of Procedure of the Commission	1 August 2004
WCPFC/PrepCon/WP.2	Draft Financial Regulations for the Commission	25 April 2001
WCPFC/PrepCon/WP.2/Rev.1	Revised draft Financial Regulations for the Commission	25 August 2003
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WCPFC/PrepCon/WP.11	Report on status of Preparatory Conference Organizational Fund and Preparatory Conference Secretariat	11 November 2002
WCPFC/PrepCon/WP.11/Rev.1	Report on status of Preparatory Conference Organizational Fund and Preparatory Conference Secretariat	28 April 2003
WCPFC/PrepCon/WP.11/Rev.1/Add.1	Report on status of Preparatory Conference Organizational Fund and Preparatory Conference Secretariat	29 September 2003
WCPFC/PrepCon/WP.11/Rev.1/Add.2	Report on status of Preparatory Conference Organizational Fund and Preparatory Conference Secretariat	19 April 2004
WCPFC/PrepCon/WP.12	Cooperation with IATTC	3 November 2002
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WCPFC/PrepCon/WP.14	Draft procedures for boarding and inspection	24 April 2003

WCPFC/PrepCon/WP.14/Rev.1	Revised draft procedures for boarding and inspection	10 September 2003
WCPFC/PrepCon/WP.15	Review of data standards for the Western and Central Pacific region	30 June 2003
WCPFC/PrepCon/WP.16	An investigation of technical capabilities and data security and confidentiality policies for the Western and Central Pacific region	30 June 2003
WCPFC/PrepCon/WP.16/Rev.1	An investigation of technical capabilities and data security and confidentiality policies for the Western and Central Pacific region	September 2003
WCPFC/PrepCon/WP.16/Add.1	Capacity of Pacific Island Countries and Territories to meet the likely data requirements of the Western and Central Pacific Fisheries Commission	September 2003
WCPFC/PrepCon/WP.17	WG.III, Proposed guidelines for the rights, duties and responsibilities for observers, captains and crew	10 September 2003
WCPFC/PrepCon/WP.18	WG.III, Proposed components for regional vessel and gear marking systems	10 September 2003
WCPFC/PrepCon/WP.19	Draft provisional agenda for the first meeting of the Commission	1 March 2004
WCPFC/PrepCon/WP.20	WG.I, Provisional budget and scheme of contributions for the Commission	1 March 2004
WCPFC/PrepCon/WP.21	Process for appointment of an Executive Director for the Commission	1 March 2004
WCPFC/PrepCon/WP.22	WG.II, Provisional agenda and discussion items for PrepCon VI	5 March 2004
WCPFC/PrepCon/WP.23	VMS Discussion Paper	5 April 2004
WCPFC/PrepCon/WP.24	Management options paper	8 April 2004

WCPFC Preparatory Conference
First session
Christchurch, New Zealand
23 – 28 April, 2001

WCPFC/PrepCon/WP.1
25 April 2001

DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

1. The draft rules of procedure for the Commission contained in the present document have been prepared by the Secretariat on the basis of standard rules of procedure for international organizations world wide, taking into account the considerations identified in document WCPFC/PrepCon/BP.3.

2. The draft rules of procedure provide for the participation of territories in the work of the Commission in accordance with article 43, paragraph 3, of the Convention. However, it should be noted that the draft rules are not intended to give effect to article 43, paragraph 2, of the Convention, which envisages the development of separate rules of procedure relating to the nature and extent of participation by territories.

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DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

I. SESSIONS

REGULAR SESSIONS

Frequency of sessions

Rule 1

The Commission shall meet in regular annual sessions unless it decides otherwise. Before the end of each session, the Commission shall decide on the date of commencement and the approximate duration of the next session.

Notification of members

Rule 2

The Executive Director shall notify the members of the Commission,[1] and each territory referred to in article 43 of the Convention, as early as possible but at least sixty days in advance of the opening of a regular session.

SPECIAL SESSIONS

Convening of special sessions

Rule 3

1. The Commission may convene special sessions and shall fix the date of commencement and duration of each session.

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[1] In accordance with article 9, paragraph 2, of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereafter referred to as "the Convention"), a fishing entity referred to in the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, which has agreed to be bound by the regime established by the Convention in accordance with the provisions of Annex I to the Convention, may participate in the work, including decision-making, of the Commission in accordance with the provisions of article 9 and Annex I. According to paragraph 2 of Annex I, such fishing entity shall participate in the work of the Commission, including decision-making, and shall comply with the obligations under the Convention. References thereto by the Commission or members of the Commission include, for the purposes of the Convention, such fishing entity as well as Contracting Parties.

2. Any member of the Commission may request the Executive Director to convene a special session of the Commission. The Executive Director shall immediately inform the other members of the Commission of the request and inquire whether they concur with it. If within thirty days of the date of communication by the Executive Director a majority of the members of the Commission concur in the request, a special session of the Commission shall be convened by the Executive Director and it shall meet no earlier than thirty days and no later than ninety days after the receipt of such concurrence.

Notification of members

Rule 4

The Executive Director shall notify the members of the Commission, and each territory referred to in article 43 of the Convention, at least thirty days in advance of the opening of a special session.

REGULAR AND SPECIAL SESSIONS

Place of meeting

Rule 5

The Commission shall meet at the headquarters of the Commission unless it decides otherwise.

Notification to observers

Rule 6

Copies of the notice convening each session of the Commission shall be addressed to the observers referred to in rule 56.

Temporary adjournment of sessions

Rule 7

The Commission may decide at any session to adjourn temporarily and resume its meetings at a later date. A regular session shall not normally be adjourned beyond the end of the year.

II. AGENDA

REGULAR SESSIONS

Provisional agenda

Rule 8

The provisional agenda for a regular session shall be drawn up by the Executive Director and communicated to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 56 at least sixty days before the opening of the session.

Drawing up of the provisional agenda

Rule 9

The provisional agenda of a regular session shall consist of:

(a) The annual report of the Executive Director on the work of the Commission;

(b) Items the inclusion of which has been requested by the Commission at a previous session;

(c) Items proposed by any member of the Commission;

(d) Items pertaining to the budget for the next financial year and the report on the accounts for the last financial year;

(e) Recommendations of the scientific experts pursuant to article 13 of the Convention and recommendations of the Scientific Committee;

(f) Recommendations of the Technical and Compliance Committee;

(g) Items which the Executive Director deems it necessary to put before the Commission.

Supplementary items

Rule 10

Any member of the Commission or the Executive Director may, at least thirty days before the date fixed for the opening of a regular session request the inclusion of supplementary items in the agenda. Such items shall be placed on a supplementary list, which shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 56 at least twenty days before the opening of the session.

Additional items

Rule 11

Additional items of an important and urgent character, proposed for inclusion in the agenda less than thirty days before the opening of a regular session or during a regular session, may be placed on the agenda if the Commission so decides by a majority of the members of the Commission present and voting. No additional item may, unless the Commission decides otherwise by a two-thirds majority of the members of the Commission present and voting, be considered until seven days have elapsed since it was placed on the agenda.

SPECIAL SESSIONS

Drawing up of the provisional agenda

Rule 12

The provisional agenda for a special session shall consist only of those items proposed for consideration in the request for holding the session.

Communication of the provisional agenda

Rule 13

The provisional agenda for a special session shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 56 at least fourteen days before the opening of the session.

REGULAR AND SPECIAL SESSIONS

Adoption of the agenda

Rule 14

At the beginning of each session, the Commission shall adopt its agenda for the session on the basis of the provisional agenda. The Commission may, however, in urgent circumstances, make additions to the agenda at any time during a session.

III. REPRESENTATION

Representation

Rule 15

1. Each member of the Commission, and each territory referred to in article 43 of the Convention, shall be represented by accredited representatives and such alternate representatives and advisers as may be required by the delegation.

2. Observers referred to in rule 56 shall be represented by accredited or designated representatives, as the case may be, and by such alternate representatives and advisers as may be required.

Accreditation

Rule 16

1. The credentials of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Director if possible not later than twenty-four hours after the opening of the session in such standard form as the Executive Director shall establish. The credentials of representatives shall be examined by the Executive Director who shall submit a report to the Commission for approval.

2. Each member of the Commission, and each territory referred to in article 43 of the Convention, shall, as soon as possible after the adoption of these rules, notify the Executive Director of an Official Contact who shall, for the purposes of official communications between the Commission and the member or territory concerned, including all notifications and communications made pursuant to these rules, be the official point of contact.

Provisional admission to a session

Rule 17

Pending a decision of the Commission upon their credentials, representatives shall be entitled to participate provisionally in the Commission.

Objection to representation

Rule 18

Any representative, to whose credentials objection has been made within the Commission, shall continue to sit with the same rights as other representatives until the Commission has decided the matter.

IV. OFFICERS

Elections

Rule 19

At its first regular session, and each two years thereafter, the Commission shall elect a Chairman and a Vice-Chairman from among the Contracting Parties to the Convention, who shall be of different nationalities. Subject to rule 22, they shall hold office for a period of two years and shall be eligible for re-election.

Functions of the Chairman

Rule 20

1. In addition to exercising the powers conferred upon him or her elsewhere in these rules or by the Convention, the Chairman shall declare the opening and closing of each plenary meeting of the Commission, direct the discussions in plenary meeting, ensure observance of these rules, accord the right to speak, put questions and announce decisions. He or she shall rule on points of order and, subject to these rules, shall have complete control of the proceedings at any meeting and over the maintenance of order thereat. The Chairman may, in the course of discussion of an item, propose to the Commission the limitation of the time to be allowed to speakers, the limitation of the number of times each representative may speak, the closure of the list of speakers or the closure of the debate. He or she may also propose the suspension or the adjournment of the meeting or the adjournment of the debate on the item under discussion.

2. The Chairman, in the exercise of his or her functions, remains under the authority of the Commission.

3. The Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman.

Voting

Rule 21

The Chairman, or the Vice-Chairman acting as Chairman, shall not vote, but shall designate another member of his or her delegation to vote in his or her place.

Replacement of the Chairman or Vice-Chairman

Rule 22

If the Chairman or Vice-Chairman is unable to carry out his or her functions or ceases to be a representative of a Contracting Party, or if a Contracting Party of which he or she is a

representative ceases to be a member of the Commission, he or she shall cease to hold office and a new Chairman or Vice-Chairman shall be elected for the unexpired term.

V. SECRETARIAT

Duties of the Executive Director

Rule 23

1. The Executive Director, as the chief administrative officer of the Commission, shall act in that capacity in all meetings of the Commission and of its subsidiary bodies. The Executive Director may designate an officer of the Secretariat to act as his or her representative. The Executive Director shall discharge such other responsibilities as are assigned to him or her under the Convention or by the Commission in the conduct of its business.

2. The Executive Director shall provide and direct, with due regard to principles of economy and efficiency, the staff required by the Commission and its subsidiary bodies.

3. The Executive Director shall keep the members of the Commission informed of any questions which may be of interest to the Commission.

Duties of the Secretariat

Rule 24

The Secretariat shall receive, reproduce and distribute documents, reports and decisions of the Commission and its subsidiary bodies, prepare and circulate, if so decided by the Commission in accordance with rule 26, the records of the session; have the custody and proper preservation of the documents in the archives of the Commission; distribute all documents of the Commission to the members of the Commission, the territories referred to in article 43 of the Convention, and observers referred to in rule 56, as appropriate; and, generally, perform all other work which the Commission may require.

Report of the Executive Director on the work of the Commission

Rule 25

The Executive Director shall make an annual report, and such supplementary reports as are necessary, to the Commission at its regular session on the work of the Commission. The Executive Director shall communicate the annual report to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 56 at least forty-five days before the opening of the regular session.

VI. RECORDS

Records and sound recordings of meetings

Rule 26

1. The Commission may keep summary records of plenary meetings if it so decides. As a general rule, such records shall be circulated as soon as possible, to all representatives, who shall inform the Secretariat within five working days after the circulation of the summary record of any changes they wish to have made.

2. The Secretariat shall make and retain sound recordings of meetings of the Commission and its subsidiary bodies when they so decide.

3. The Executive Director shall communicate the text of all decisions adopted by the Commission pursuant to article 20 of the Convention to all members of the Commission within seven working days following the adoption of such decision.

VII. PUBLIC AND PRIVATE MEETINGS OF THE COMMISSION AND ITS SUBSIDIARY BODIES

Public and private meetings

Rule 27

1. The meetings of the Commission shall be held in public unless the Commission decides that exceptional circumstances require that meetings be held in private.

2. As a general rule, meetings of subsidiary bodies shall be held in private.

3. All decisions of the Commission taken at a private meeting shall be announced at an early public meeting of the Commission. At the close of a private meeting of a subsidiary body, the Chairman may issue a communiqué through the Executive Director.

VIII. PLENARY MEETINGS

Quorum

Rule 28

The Chairman may declare a meeting open and permit the debate to proceed when at least three-fourths of the members of the Commission are present.

Speeches

Rule 29

No representative may address the Commission without having previously obtained the permission of the Chairman. The Chairman shall call upon speakers in the order in which they signify their desire to speak. The Chairman may call a speaker to order if his or her remarks are not relevant to the subject under discussion.

Precedence

Rule 30

The Chairman of a subsidiary body may be accorded precedence for the purpose of explaining the conclusions arrived at by that body.

Statements by the Secretariat

Rule 31

The Executive Director, or a member of the Secretariat designated by him as his representative, may at any time make either oral or written statements to the Commission concerning any question under consideration by it.

Points of order

Rule 32

During the discussion of any matter, a member of the Commission may rise to a point of order, and the point of order shall be immediately decided by the Chairman in accordance with these rules of procedure. A representative of a member of the Commission may appeal against the ruling of the Chairman. The appeal shall be immediately put to the vote, and the Chairman's ruling shall stand unless overruled by a majority of the members of the Commission present and voting. A representative rising to a point of order may not speak on the substance of the matter under discussion.

Time-limit on speeches

Rule 33

The Commission may limit the time to be allowed to each speaker and the number of times each representative may speak on any question. Before a decision is taken, two representatives of members of the Commission may speak in favour of, and two against, a proposal to set such limits. When the debate is limited and a representative exceeds his or her allotted time, the Chairman shall call him or her to order without delay.

Closing of list of speakers, right of reply

Rule 34

During the course of the debate, the Chairman may announce the list of speakers and, with the consent of the Commission, declare the list closed. The Chairman may, however, accord the right of reply to any representative if a speech delivered after the list has been declared closed makes this desirable.

Adjournment of debate

Rule 35

During the discussion of any matter, a representative of a member of the Commission may move the adjournment of the debate on the item under discussion. In addition to the proposer of the motion, two representatives of members of the Commission may speak in favour of, and two against, the motion, after which the motion shall be immediately put to the vote. The Chairman may limit the time to be allowed to speakers under this rule.

Closure of debate

Rule 36

A representative of a member of the Commission may at any time move the closure of the debate on the question under discussion, whether or not any other representative has signified his or her wish to speak. In addition to the proposer of the motion, two representatives of members of the Commission may speak in favour of, and two against, the motion, after which the motion shall be immediately put to the vote. If the Commission is in favour of closure, the

Chairman shall declare the closure of the debate. The Chairman may limit the time to be allowed to speakers under this rule.

Suspension or adjournment of the meeting

Rule 37

During the discussion of any matter, a representative of a member of the Commission may move the suspension or adjournment of the meeting. Such motions shall not be debated, but shall be immediately put to the vote. The Chairman may limit the time to be allowed to the speaker moving the suspension or adjournment of the meeting.

Order of procedural motions

Rule 38

Subject to rule 32, the following motions shall have precedence in the following order over all other proposals or motions before the meeting:

(a) To suspend the meeting;

(b) To adjourn the meeting;

(c) To adjourn the debate on the item under discussion;

(d) To close the debate on the item under discussion.

Proposals and amendments

Rule 39

Proposals and amendments shall normally be circulated in writing to the Executive Director, who shall circulate copies to the delegations. As a general rule, no proposal shall be discussed or put to the vote at any meeting of the Commission unless copies of it have been circulated to all delegations not later than the day preceding the meeting. The Chairman may, however, permit the discussion and consideration of amendments, or of motions as to procedure, even though such amendments and motions have not been circulated or have only been circulated the same day.

Decisions on competence

Rule 40

Subject to rule 38, any motion calling for a decision on the competence of the Commission to adopt a proposal submitted to it shall be put to the vote before a vote is taken on the proposal in question.

Withdrawal of proposals and motions

Rule 41

A proposal or a motion may be withdrawn by its proposer at any time before voting on it has commenced, provided that the proposal or motion has not been amended. A proposal or a motion thus withdrawn may be reintroduced by any member of the Commission.

Reconsideration of proposals

Rule 42

When a proposal has been adopted or rejected, it may not be reconsidered at the same session unless the Commission, by a three-fourths majority of the members of the Commission present and voting, so decides. Permission to speak on a motion to reconsider shall be accorded only to two representatives of members of the Commission in favour of the motion, and two against the motion, after which the motion shall be immediately put to the vote.

IX. DECISION-MAKING

Voting rights

Rule 43

Each member of the Commission shall have one vote.

Decision-making

Rule 44

1. As a general rule, decision-making in the Commission shall be by consensus. For the purposes of these rules, "consensus" means the absence of any objection.

2. If all efforts to reach a decision by consensus have been exhausted, decisions by voting in the Commission on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority of those present and voting provided that such majority includes a three-fourths majority of the members of the South Pacific Forum Fisheries Agency present and voting and a three-fourths majority of non-members of the South Pacific Forum Fisheries Agency present and voting and provided further that in no circumstances shall a proposal be defeated by two or fewer votes in either chamber. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Commission by consensus or by the majority required for decisions on questions of substance.

3. If it appears to the Chairman that all efforts to reach a decision by consensus have been exhausted, the Chairman shall fix a time during that session of the Commission for taking the decision by a vote. At the request of any representative, the Commission may, by a majority of those present and voting, defer the taking of a decision until such time during the same session as the Commission may decide. At that time, the Commission shall take a vote on the deferred question. This rule may be applied only once to any question.

4. Elections of individuals shall be conducted in accordance with article 20 of the Convention. In the event of a vote, notwithstanding the provisions of rule 47, the election shall be conducted by secret ballot. If no candidate obtains in the first ballot the necessary majorities of the votes cast, a second ballot restricted to the two candidates obtaining the largest number of votes shall be taken. If in the second ballot the votes are equally divided, the balloting shall be continued until one candidate secures the necessary majorities of the votes cast.

Decisions requiring a consensus

Rule 45

Decisions on questions of substance arising under the following provisions of the Convention shall be taken by consensus: article 9, paragraph 8 (adoption of rules of procedure), article 10, paragraph 4 (decisions relating to the allocation of total allowable catch or the total level of fishing effort), article 17, paragraph 2 (adoption of financial regulations), article 18, paragraphs 1 and 2 (adoption of the budget and a scheme for assessment of contributions to the budget), article 35, paragraph 2 (admission of new members), and article 40 (amendments to the Convention).

Use of terms

Rule 46

1. For the purposes of these rules, the phrase "those present and voting" means members of the Commission present and casting an affirmative or negative vote. Members of the Commission who abstain from voting shall be considered as not voting.

2. Subject to the provisions of rules 16 to 18, and without prejudice to any decision of the Commission on the credentials of a representative, the term "those participating" in relation to any particular session of the Commission means any member of the Commission whose representatives have registered with the Secretariat as participating in that session and which has not subsequently notified the Secretariat of its withdrawal from that session or part thereof. The Secretariat shall keep a register for that purpose.

Method of voting

Rule 47

The Commission shall vote by show of hands or by standing, but a representative of any member of the Commission may request a roll-call. The roll-call shall be taken in the alphabetical order of the names of the members of the Commission participating in that session, beginning with the member whose name is drawn by lot by the Chairman. The name of each member of the Commission shall be called in any roll-call, and one of its representatives shall reply "yes", "no" or "abstention". The result of the voting shall be inserted in the record in the alphabetical order of the names of the members.

Conduct during voting

Rule 48

After the Chairman has announced the commencement of voting, no representative of a member of the Commission may interrupt the voting, except that representatives of members of the Commission may interrupt on a point of order in connection with the actual conduct of voting.

Explanation of vote

Rule 49

Representatives of members of the Commission may make brief statements consisting solely of explanations of their votes before the voting has commenced or after the voting has been completed. The Chairman may limit the time to be allowed for such statements. The representative of a member of the Commission sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended.

Division of proposals and amendments

Rule 50

A representative of a member of the Commission may move that parts of a proposal or of an amendment should be voted on separately. If objection is made to the request for a division, the motion for division shall be voted upon. Permission to speak on the motion for division shall be given only to two speakers in favour and two speakers against. If the motion for division is carried, those parts of the proposal or of the amendment which are approved shall then be put to the vote as a whole. If all operative parts of the proposal or of the amendment have been rejected, the proposal or the amendment shall be considered to have been rejected as a whole.

Order of voting on amendments

Rule 51

When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the Commission shall first vote on the amendment furthest removed in substance from the original proposal and then on to the amendment next furthest removed therefrom and so on until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter amendment shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted upon. A motion is considered an amendment to a proposal if it merely adds to, deletes from or revises part of the proposal.

Order of voting on proposals

Rule 52

If two or more proposals relate to the same question, the Commission shall, unless it decides otherwise, vote on the proposals in the order in which they have been submitted. The Commission may, after each vote on a proposal, decide whether to vote on the next proposal.

X. SUBSIDIARY BODIES

Establishment

Rule 53

The Commission may establish, as appropriate, and with due regard to economy and efficiency, such subsidiary bodies as it finds necessary for the exercise of its functions.

Rules of procedure

Rule 54

Subject to the provisions of the Convention, these rules of procedure apply, mutatis mutandis, to the proceedings of subsidiary bodies, including the Scientific Committee and the Technical and Compliance Committee, unless the Commission decides otherwise.

XI. SUSPENSION OF RIGHTS

Suspension of the exercise of voting rights

Rule 55

A contributor to the budget of the Commission which is in arrears in the payment of its financial contributions to the Commission shall not participate in the taking of decisions by the Commission if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The Commission may, nevertheless, permit such a contributor to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the contributor.

XII. OBSERVERS

Observers

Rule 56

1. The following may participate as observers in the Commission:

(a) States, entities and fishing entities that participated in the Multilateral High Level Conference on the Conservation and Management of the Highly Migratory Fish Stocks, which are not members of the Commission;

(b) Any entity referred to in article 305, paragraph 1, subparagraphs (c), (d) and (e) of the 1982 United Nations Convention on the Law of the Sea which is situated in the Convention Area, which is not a member of the Commission;

(c) Other States with an interest in the work of the Commission, invited by the Commission, which are not members of the Commission and whose participation in the capacity of observer may promote the implementation of the Convention;

(d) The Food and Agriculture Organization of the United Nations and other relevant intergovernmental organizations and South Pacific regional organizations invited by the Commission;

(e) Non-governmental organizations admitted by the Commission pursuant to paragraph 4 of this rule which have demonstrated their interest in matters under consideration by the Commission.

2. Observers referred to in paragraph 1 (a), (b) and (c) of this rule may participate subject to the provisions of these rules in the deliberations of the Commission and its subsidiary bodies but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

3. Observers referred to in paragraph 1 (d) of this rule may participate in the deliberations of the Commission and its subsidiary bodies upon the invitation of the Chairman on questions within the scope of their competence, but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

4. A non-governmental organization desiring to participate as an observer shall notify the Executive Director in writing of its desire to participate at least 50 days in advance of the session. The Executive Director shall notify the members of the Commission of such request at least 45 days prior to the opening of the session at which the request is to be considered. The Commission shall approve such a request for observer status unless a majority of the members of the Commission objects to the request.

5. Observers referred to in paragraph 1 (e) of this rule may sit at public meetings of the Commission and upon the invitation of the Chairman and subject to the approval of the Commission may make oral statements on matters within the scope of their activities. Written statements submitted by observers referred to in paragraph 1 (e) of this rule within the scope of their activities which are relevant to the work of the Commission may, subject to the approval of the Chairman, be distributed at meetings of the Commission.

6. The Executive Director may require observers referred to in paragraph 1 (e) of this rule to pay reasonable fees to cover the administrative costs attributable to their attendance at meetings of the Commission.

XIII. AMENDMENTS

Method of amendment

Rule 57

These rules of procedure may be amended by a decision of the Commission, taken by consensus.

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WCPFC Preparatory Conference
Second session
Madang, Papua New Guinea
25 February – 1 March 2002

WCPFC/PrepCon/WP.1/Rev.1
23 January 2002

DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

1. The draft rules of procedure for the Commission contained in the present document have been prepared by the Secretariat on the basis of standard rules of procedure for international organizations world wide, taking into account the considerations that had been identified in document WCPFC/PrepCon/BP.3.

2. Following discussion of the draft in an informal working group of the whole during the first session of the Preparatory Conference, the draft has been revised taking into account the comments and suggestions made by delegations.

3. The draft rules of procedure provide for the participation of territories in the work of the Commission in accordance with article 43, paragraph 3, of the Convention. However, it should be noted that, at present, the draft rules are not intended to give effect to article 43, paragraph 2, of the Convention, which envisages the development of separate rules of procedure relating to the nature and extent of participation by territories. During the first session of the Preparatory Conference, the delegation of New Zealand submitted a paper relating to rules of procedure for the participation of territories (WCPFC/PrepCon/DP.5). The informal session agreed that the paper submitted by New Zealand formed a useful basis for further discussion of the issue of participation by territories and that the matter would be taken up at future sessions of the Preparatory Conference.

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DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

I. SESSIONS

REGULAR SESSIONS

Frequency of sessions

Rule 1

The Commission shall hold a regular annual session[1] unless it decides otherwise. Before the end of each regular annual session, the Commission shall, if possible, decide on the date of commencement and the approximate duration of the next regular annual session.

Notification

Rule 2

The Executive Director shall notify the members of the Commission,[2] each territory referred to in article 43 of the Convention, and observers referred to in rule 53, as early as possible but at least sixty days in advance of the opening of a regular annual session.

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[1] In these rules, unless otherwise stated, 'regular annual session' means the annual meeting of the Commission specified in article 9, paragraph 3, of the Convention.

[2] In accordance with article 9, paragraph 2, of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereafter referred to as "the Convention"), a fishing entity referred to in the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, which has agreed to be bound by the regime established by the Convention in accordance with the provisions of Annex I to the Convention, may participate in the work, including decision-making, of the Commission in accordance with the provisions of article 9 and Annex I. According to paragraph 2 of Annex I, such fishing entity shall participate in the work of the Commission, including decision-making, and shall comply with the obligations under the Convention. References thereto by the Commission or members of the Commission include, for the purposes of the Convention, such fishing entity as well as Contracting Parties.

SPECIAL SESSIONS

Convening of special sessions

Rule 3

1. The Commission may convene special sessions and shall fix the date of commencement and duration of each session.

2. Any member of the Commission may request the Executive Director to convene a special session of the Commission. The Executive Director shall immediately inform the other members of the Commission of the request and inquire whether they concur with it. If within thirty days of the date of communication by the Executive Director a majority of the members of the Commission concur in the request, a special session of the Commission shall be convened by the Executive Director and it shall meet no earlier than thirty days and no later than ninety days after the receipt of such concurrence.

Notification

Rule 4

The Executive Director shall notify the members of the Commission, each territory referred to in article 43 of the Convention, and observers referred to in rule 53, as early as possible but at least thirty days in advance of the opening of a special session.

REGULAR AND SPECIAL SESSIONS

Place of meeting

Rule 5

The Commission shall meet at the headquarters of the Commission unless it decides otherwise.

Temporary adjournment of sessions

Rule 6

The Commission may decide at any session to adjourn temporarily and resume the session at a later date.

II. AGENDA

REGULAR SESSIONS

Provisional agenda

Rule 7

The provisional agenda for a regular session shall be drawn up by the Executive Director, in consultation with the Chairman, and communicated to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 53 at least sixty days before the opening of the session.

Drawing up of the provisional agenda

Rule 8

The provisional agenda of a regular session shall consist of:

(a) The annual report of the Executive Director on the work of the Commission;

(b) Items the inclusion of which has been requested by the Commission at a previous session;

(c) Items proposed by any member of the Commission;

(d) Items pertaining to the budget for the next financial year and the report on the accounts for the last financial year;

(e) Recommendations of the scientific experts pursuant to article 13 of the Convention and recommendations of the Scientific Committee;

(f) Recommendations of the Technical and Compliance Committee;

(g) Items which the Executive Director deems it necessary to put before the Commission.

Supplementary items

Rule 9

Any member of the Commission or the Executive Director may, at least thirty days before the date fixed for the opening of a regular session request the inclusion of supplementary items in the agenda. A request for the inclusion of a supplementary item on the provisional agenda shall be accompanied by a written explanation of the proposed supplementary item. Such items shall be placed on a supplementary list, which shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 53 at least twenty days before the opening of the session.

SPECIAL SESSIONS

Drawing up of the provisional agenda

Rule 10

The provisional agenda for a special session shall consist only of those items proposed for consideration in the request for holding the session.

Communication of the provisional agenda

Rule 11

The provisional agenda for a special session shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 53, at least fourteen days before the opening of the session.

REGULAR AND SPECIAL SESSIONS

Adoption of the agenda

Rule 12

At the beginning of each session, the Commission shall adopt its agenda for the session on the basis of the provisional agenda. The Commission may, however, in urgent circumstances, place additional items of an important or urgent character on the agenda at any time during a session.

III. REPRESENTATION

Representation

Rule 13

1. Each member of the Commission, and each territory referred to in article 43 of the Convention, shall be represented by designated representatives and such alternate representatives and advisers as may be required by the delegation.

2. Observers referred to in rule 53 shall be represented by designated representatives and by such alternate representatives and advisers as may be required.

3. The names of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Director if possible not later than twenty-four hours after the opening of the session in such standard form of designation as the Executive Director shall establish.

Official contact

Rule 14

Each member of the Commission, and each territory referred to in article 43 of the Convention, shall, as soon as possible after the adoption of these rules, notify the Executive Director of an Official Contact who shall, for the purposes of official communications between the Commission and the member or territory concerned, including all notifications and communications made pursuant to these rules, be the official point of contact.

Objection to representation

Rule 15

Any representative, to whose designation objection has been made within the Commission, shall continue to sit with the same rights as other representatives until the Commission has decided the matter.

IV. OFFICERS

Elections

Rule 16

At its first regular session, and each two years thereafter, the Commission shall elect a Chairman and a Vice-Chairman from among the Contracting Parties to the Convention, who shall be of different nationalities. Subject to rule 19, they shall hold office for a period of two years and shall be eligible for re-election.

Functions of the Chairman

Rule 17

1. In addition to exercising the powers conferred upon him or her elsewhere in these rules or by the Convention, the Chairman shall declare the opening and closing of each plenary meeting of the Commission, direct the discussions in plenary meeting, ensure observance of these rules, accord the right to speak, put questions and announce decisions. He or she shall rule on points of order and, subject to these rules, shall have complete control of the proceedings at any meeting and over the maintenance of order thereat. The Chairman may, in the course of discussion of an item, propose to the Commission the limitation of the time to be allowed to speakers, the limitation of the number of times each representative may speak, the closure of the list of speakers or the closure of the debate. He or she may also propose the suspension or the adjournment of the meeting or the adjournment of the debate on the item under discussion.

2. The Chairman, in the exercise of his or her functions, remains under the authority of the Commission.

3. The Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman.

Voting

Rule 18

The Chairman, or the Vice-Chairman acting as Chairman, shall not vote, but shall designate another member of his or her delegation to vote in his or her place.

Replacement of the Chairman or Vice-Chairman

Rule 19

If the Chairman or Vice-Chairman is unable to carry out his or her functions or ceases to be a representative of a Contracting Party, or if a Contracting Party of which he or she is a representative ceases to be a member of the Commission, he or she shall cease to hold office and a new Chairman or Vice-Chairman shall be elected for the unexpired term.

V. SECRETARIAT

Duties of the Executive Director

Rule 20

1. The Executive Director, as the chief administrative officer of the Commission, shall act in that capacity in all meetings of the Commission and of its subsidiary bodies. The Executive Director may designate an officer of the Secretariat to act as his or her representative. The Executive Director shall discharge such other responsibilities as are assigned to him or her under the Convention or by the Commission in the conduct of its business.

2. The Executive Director shall provide and direct, with due regard to principles of economy and efficiency, the staff required by the Commission and its subsidiary bodies.

3. The Executive Director shall keep the members of the Commission informed of any questions which may be of interest to the Commission.

Duties of the Secretariat

Rule 21

The Secretariat shall carry out the duties and perform the functions set out in article 15 of the Convention. In particular, the Secretariat shall receive, reproduce and distribute documents, reports and decisions of the Commission and its subsidiary bodies, prepare and circulate summary reports of the meetings of the Commission in accordance with rule 23; have the custody and proper preservation of the documents in the archives of the Commission; distribute all documents of the Commission to the members of the Commission, the territories referred to in article 43 of the Convention, and observers referred to in rule 53; and, generally, perform all other work which the Commission may require.

Report of the Executive Director on the work of the Commission

Rule 22

The Executive Director shall make an annual report, and such supplementary reports as are necessary, to the Commission at its regular session on the work of the Commission. The Executive Director shall communicate the annual report to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 53 at least forty-five days before the opening of the regular session.

VI. RECORDS

Records and sound recordings of meetings

Rule 23

1. Summary reports of the sessions of the Commission shall be maintained in such form as the Commission shall decide. As a general rule, such reports shall be circulated as soon as possible, to all representatives, who shall inform the Secretariat within fifteen working days after the circulation of the summary report of any changes they wish to have made.

2. The Executive Director shall communicate the text of all decisions adopted by the Commission pursuant to article 20 of the Convention to all members of the Commission within seven working days following the adoption of such decision.

VII. PUBLIC AND PRIVATE MEETINGS OF THE COMMISSION AND ITS SUBSIDIARY BODIES

Public and private meetings

Rule 24

1. The meetings of the Commission shall be held in public unless the Commission decides that exceptional circumstances require that meetings be held in private.

2. As a general rule, meetings of subsidiary bodies shall be held in private.

3. All decisions of the Commission taken at a private meeting shall be announced at an early public meeting of the Commission. At the close of a private meeting of a subsidiary body, the Chairman may issue a communiqué through the Executive Director.

VIII. PLENARY MEETINGS

Quorum

Rule 25

The Chairman may declare a meeting open and permit the debate to proceed when at least three-fourths of the members of the Commission are present.

Speeches

Rule 26

No representative may address the Commission without having previously obtained the permission of the Chairman. The Chairman shall call upon speakers in the order in which they signify their desire to speak. The Chairman may call a speaker to order if his or her remarks are not relevant to the subject under discussion.

Precedence

Rule 27

The Chairman of a subsidiary body may be accorded precedence for the purpose of explaining the conclusions arrived at by that body.

Statements by the Secretariat

Rule 28

The Executive Director, or a member of the Secretariat designated by him as his representative, may, at any time with the permission of the Chairman, make either oral or written statements to the Commission concerning any question under consideration by it.

Points of order

Rule 29

During the discussion of any matter, a member of the Commission may rise to a point of order, and the point of order shall be immediately decided by the Chairman in accordance with these rules of procedure. A member of the Commission may appeal against the ruling of the Chairman. The appeal shall be immediately put to the vote, and the Chairman's ruling shall stand unless overruled by a majority of the members of the Commission present and voting. A representative rising to a point of order may not speak on the substance of the matter under discussion.

Time-limit on speeches

Rule 30

The Commission may limit the time to be allowed to each speaker and the number of times each representative may speak on any question. When the debate is limited and a representative exceeds his or her allotted time, the Chairman shall call him or her to order without delay.

Closing of list of speakers, right of reply

Rule 31

During the course of the debate, the Chairman may announce the list of speakers and, with the consent of the Commission, declare the list closed. The Chairman may, however, accord the right of reply to any representative if a speech delivered after the list has been declared closed makes this desirable.

Adjournment of debate

Rule 32

During the discussion of any matter, a member of the Commission may move the adjournment of the debate on the item under discussion. In addition to the proposer of the motion, two members of the Commission may speak in favour of, and two against, the motion, after which the motion shall be immediately put to the vote. The Chairman may limit the time to be allowed to speakers under this rule.

Closure of debate

Rule 33

A member of the Commission may at any time move the closure of the debate on the question under discussion, whether or not any other member has signified his or her wish to speak. In addition to the proposer of the motion, two members of the Commission may speak in favour of, and two against, the motion, after which the motion shall be immediately put to the vote. If the Commission is in favour of closure, the Chairman shall declare the closure of the debate. The Chairman may limit the time to be allowed to speakers under this rule.

Suspension or adjournment of the meeting

Rule 34

During the discussion of any matter, a member of the Commission may move the suspension or adjournment of the meeting. Such motions shall not be debated, but shall be immediately put to the vote. The Chairman may limit the time to be allowed to the speaker moving the suspension or adjournment of the meeting.

Order of procedural motions

Rule 35

Subject to rule 29, the following motions shall have precedence in the following order over all other proposals or motions before the meeting:

(a) To suspend the meeting;

(b) To adjourn the meeting;

(c) To adjourn the debate on the item under discussion;

(d) To close the debate on the item under discussion.

Proposals and amendments

Rule 36

Proposals and amendments shall normally be circulated in writing to the Executive Director, who shall circulate copies to the delegations. As a general rule, no proposal shall be discussed or put to the vote at any meeting of the Commission unless copies of it have been circulated to all delegations not later than the day preceding the meeting. The Chairman may, however, permit the discussion and consideration of amendments, or of motions as to procedure, even though such amendments and motions have not been circulated or have only been circulated the same day.

Decisions on competence

Rule 37

Subject to rule 35, any motion calling for a decision on the competence of the Commission to adopt a proposal submitted to it shall be put to the vote before a vote is taken on the proposal in question.

Withdrawal of proposals and motions

Rule 38

A proposal or a motion may be withdrawn by its proposer at any time before voting on it has commenced, provided that the proposal or motion has not been amended. A proposal or a motion thus withdrawn may be reintroduced by any member of the Commission.

Reconsideration of proposals

Rule 39

When a proposal has been adopted or rejected, it may not be reconsidered at the same session unless the Commission, by a three-fourths majority of the members of the Commission present and voting, so decides. Permission to speak on a motion to reconsider shall be accorded only to two members of the Commission in favour of the motion, and two against the motion, after which the motion shall be immediately put to the vote.

IX. DECISION-MAKING

Voting rights

Rule 40

Each member of the Commission shall have one vote, unless otherwise provided in the Convention.

Decision-making

Rule 41

1. As a general rule, decision-making in the Commission shall be by consensus. For the purposes of these rules, "consensus" means the absence of any objection.

2. If all efforts to reach a decision by consensus have been exhausted, decisions by voting in the Commission on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority of those present and voting provided that such majority includes a three-fourths majority of the members of the South Pacific Forum Fisheries Agency present and voting and a three-fourths majority of non-members of the South Pacific Forum Fisheries Agency present and voting and provided further that in no circumstances shall a proposal be defeated by two or fewer votes in either chamber. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Commission by consensus or by the majority required for decisions on questions of substance.

3. If it appears to the Chairman that all efforts to reach a decision by consensus have been exhausted, the Chairman shall fix a time during that session of the Commission for taking the decision by a vote. At the request of any member, the Commission may, by a majority of those present and voting, defer the taking of a decision until such time during the same session as the Commission may decide. At that time, the Commission shall take a vote on the deferred question. This rule may be applied only once to any question.

4. Elections of individuals shall be conducted in accordance with article 20 of the Convention. In the event of a vote, notwithstanding the provisions of rule 43, the election shall be conducted by secret ballot. If no candidate obtains in the first ballot the necessary majorities of the votes cast, a second ballot restricted to the two candidates obtaining the largest number of votes shall be taken. If in the second ballot the votes are equally divided, the balloting shall be continued until one candidate secures the necessary majorities of the votes cast.

5. For the purposes of these rules, the phrase "those present and voting" means members of the Commission present and casting an affirmative or negative vote. Members of the Commission who abstain from voting shall be considered as not voting.

Decisions requiring a consensus

Rule 42

Decisions on questions of substance arising under the following provisions of the Convention shall be taken by consensus: article 9, paragraph 8 (adoption of rules of procedure), article 10, paragraph 4 (decisions relating to the allocation of total allowable catch or the total level of fishing effort), article 17, paragraph 2 (adoption of financial regulations), article 18, paragraphs 1 and 2 (adoption of the budget and a scheme for assessment of contributions to the budget), and article 40 (amendments to the Convention).

Method of voting

Rule 43

The Commission shall vote by show of hands or by standing, but any member of the Commission may request a roll-call. The roll-call shall be taken in the alphabetical order of the names of the members of the Commission participating in that session, beginning with the member whose name is drawn by lot by the Chairman. The name of each member of the Commission shall be called in any roll-call, and one of its representatives shall reply "yes", "no" or "abstention". The result of the voting shall be inserted in the record in the alphabetical order of the names of the members.

Conduct during voting

Rule 44

After the Chairman has announced the commencement of voting, no member of the Commission may interrupt the voting, except that members of the Commission may interrupt on a point of order in connection with the actual conduct of voting.

Explanation of vote

Rule 45

Members of the Commission may make brief statements consisting solely of explanations of their votes before the voting has commenced or after the voting has been completed. The Chairman may limit the time to be allowed for such statements. A member of the Commission sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended.

Division of proposals and amendments

Rule 46

A member of the Commission may move that parts of a proposal or of an amendment should be voted on separately. If objection is made to the request for a division, the motion for division shall be voted upon. Permission to speak on the motion for division shall be given only to two speakers in favour and two speakers against. If the motion for division is carried, those parts of the proposal or of the amendment which are approved shall then be put to the vote as a

whole. If all operative parts of the proposal or of the amendment have been rejected, the proposal or the amendment shall be considered to have been rejected as a whole.

Order of voting on amendments

Rule 47

When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the Commission shall first vote on the amendment furthest removed in substance from the original proposal and then on to the amendment next furthest removed therefrom and so on until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter amendment shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted upon. A motion is considered an amendment to a proposal if it adds to, deletes from or revises part of the proposal.

Order of voting on proposals

Rule 48

If two or more proposals relate to the same question, the Commission shall, unless it decides otherwise, vote on the proposals in the order in which they have been submitted. The Commission may, after each vote on a proposal, decide whether to vote on the next proposal.

X. SUBSIDIARY BODIES

Establishment

Rule 49

The Commission may establish, as appropriate, and with due regard to economy and efficiency, such subsidiary bodies as it finds necessary for the exercise of its functions.

Rules of procedure

Rule 50

Except as otherwise provided in the Convention, these rules of procedure apply, mutatis mutandis, to the proceedings of subsidiary bodies, including the Scientific Committee and the Technical and Compliance Committee.

XI. SUSPENSION OF RIGHTS

Suspension of the exercise of voting rights

Rule 51

A contributor to the budget of the Commission which is in arrears in the payment of its financial contributions to the Commission shall not participate in the taking of decisions by the Commission if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The Commission may, nevertheless, permit such a contributor to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the contributor.

XII. OBSERVERS

Observers

Rule 52

1. The following may participate as observers in the Commission:

(a) States, entities and fishing entities that participated in the Multilateral High Level Conference on the Conservation and Management of the Highly Migratory Fish Stocks, which are not members of the Commission;

(b) Any entity referred to in article 305, paragraph 1, subparagraphs (c), (d) and (e) of the 1982 United Nations Convention on the Law of the Sea which is situated in the Convention Area, which is not a member of the Commission;

(c) Other States with an interest in the work of the Commission, invited by the Commission, which are not members of the Commission;

(d) The Food and Agriculture Organization of the United Nations and other relevant intergovernmental organizations and South Pacific regional organizations invited by the Commission;

(e) Non-governmental organizations concerned with matters relevant to the implementation of the Convention admitted by the Commission pursuant to paragraph 4 of this rule which have demonstrated their interest in matters under consideration by the Commission.

2. Observers referred to in paragraph 1 (a), (b) and (c) of this rule may participate subject to the provisions of these rules in the deliberations of the Commission and its subsidiary bodies but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

3. Observers referred to in paragraph 1 (d) of this rule may participate in the deliberations of the Commission and its subsidiary bodies upon the invitation of the Chairman on questions within the scope of their competence, but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

4. A non-governmental organization desiring to participate as an observer shall notify the Executive Director in writing of its desire to participate at least fifty days in advance of the session. The Executive Director shall notify the members of the Commission of such request at least 45 days prior to the opening of the session at which the request is to be considered. Non-governmental organizations that have made such notification to the Executive Director shall be invited to participate in the session as observers unless a majority of the members of the Commission objects to the request in writing at least twenty days before the opening of the session. Upon consideration of the request at the session, the Commission shall approve such a request for observer status unless a majority of the members of the Commission objects to the request. Such observer status shall remain in effect for future sessions unless the Commission decides otherwise.

5. Observers referred to in paragraph 1 (e) of this rule may sit at public meetings of the Commission and upon the invitation of the Chairman and subject to the approval of the

Commission may make oral statements on matters within the scope of their activities. Written statements submitted by observers referred to in paragraph 1 (e) of this rule within the scope of their activities which are relevant to the work of the Commission may, subject to the approval of the Chairman, be distributed at meetings of the Commission.

6. The Executive Director may require observers referred to in paragraph 1 (e) of this rule to pay reasonable fees to cover the administrative costs attributable to their attendance at meetings of the Commission.

XIII. AMENDMENTS

Method of amendment

Rule 53

These rules of procedure may be amended by a decision of the Commission, taken by consensus.

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WCPFC Preparatory Conference
Third session
Manila, Philippines
18 – 23 November 2002

WCPFC/PrepCon/WP.1/Rev.2
1 October 2002

DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

1. The draft rules of procedure for the Commission contained in the present document were prepared by the Secretariat on the basis of standard rules of procedure for international organizations world wide, taking into account the considerations identified in document WCPFC/PrepCon/BP.3. A revised draft was prepared following discussion in the informal working group of the whole during the first session of the Preparatory Conference

2. Following discussion of the draft in the informal working group of the whole during the second session of the Preparatory Conference, the draft has been further revised taking into account the comments and suggestions made by delegations. In addition, following proposals made by several delegations, proposals for mail voting procedures are set out in the annex to the present document.

3. The draft rules of procedure provide for the participation of territories in the work of the Commission in accordance with article 43, paragraph 3, of the Convention. However, it should be noted that, at present, the draft rules are not intended to give effect to article 43, paragraph 2, of the Convention, which envisages the development of separate rules of procedure relating to the nature and extent of participation by territories. During the first session of the Preparatory Conference, the delegation of New Zealand submitted a paper relating to rules of procedure for the participation of territories (WCPFC/PrepCon/DP.5). The informal session agreed that the paper submitted by New Zealand formed a useful basis for further discussion of the issue of participation by territories and that the matter would be taken up at future sessions of the Preparatory Conference.

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DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

I. SESSIONS

REGULAR AND SPECIAL SESSIONS

Convening of regular and special sessions

Rule 1

1. The Commission shall hold a regular annual session[1] unless it decides otherwise. Before the end of each regular annual session, the Commission shall, if possible, decide on the date of commencement and the approximate duration of the next regular annual session.

2. The Executive Director shall notify the members of the Commission,[2] each territory referred to in article 43 of the Convention, and observers referred to in rule 32, of the date and place and provisional agenda of the session as early as possible but at least ninety days in advance of the opening of a regular annual session.

3. In exceptional circumstances, the Commission may convene special sessions in accordance with this paragraph. Any member of the Commission may request the Executive Director to convene a special session of the Commission. The Executive Director shall immediately inform the other members of the Commission of the request and inquire whether they concur with it. If within thirty days of the date of communication by the Executive Director a majority of the members of the Commission concur in the request, a special session of the Commission shall be convened by the Executive Director and it shall meet no earlier than thirty days and no later than ninety days after the receipt of such concurrence. The Executive Director shall notify the members of the Commission, each territory referred to in article 43 of the Convention, and observers referred to in rule 32, of the date and place and provisional agenda for a special session as early as possible but at least twenty-five days in advance of the special session.

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[1] In these rules, unless otherwise stated, 'regular annual session' means the annual meeting of the Commission specified in article 9, paragraph 3 of the Convention.

[2] In accordance with article 9, paragraph 2, of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereafter referred to as "the Convention"), a fishing entity referred to in the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, which has agreed to be bound by the regime established by the Convention in accordance with the provisions of Annex I to the Convention, may participate in the work, including decision-making, of the Commission in accordance with the provisions of article 9 and Annex I. According to paragraph 2 of Annex I, such fishing entity shall participate in the work of the Commission, including decision-making, and shall comply with the obligations under the Convention. References thereto by the Commission or members of the Commission include, for the purposes of the Convention, such fishing entity as well as Contracting Parties.

4. The Commission shall meet at the headquarters of the Commission unless it decides otherwise.

II. AGENDA

REGULAR SESSIONS

Drawing up of the provisional agenda

Rule 2

1. The provisional agenda for a regular session shall be drawn up by the Executive Director, in consultation with the Chairman.

2. The provisional agenda of a regular session shall consist of:

(a) The annual report of the Executive Director on the work of the Commission;

(b) Items the inclusion of which has been requested by the Commission at a previous session;

(c) Items proposed by any member of the Commission;

(d) Items pertaining to the budget for the next financial year, the report on the accounts for the last financial year and the auditors' report;

(e) Recommendations of the Scientific Committee and any recommendations of the scientific experts pursuant to article 13 of the Convention;

(f) Recommendations of the Technical and Compliance Committee;

(g) Recommendations of the committee established pursuant to article 11, paragraph 7, of the Convention; and

(h) Items which the Executive Director deems it necessary to put before the Commission.

Supplementary items

Rule 3

Any member of the Commission or the Executive Director may, at least thirty days before the date fixed for the opening of a regular session request the inclusion of supplementary items in the agenda. A request for the inclusion of a supplementary item on the provisional agenda shall be accompanied by a written explanation of the proposed supplementary item. Such items shall be placed on a supplementary list, which shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 32 at least twenty days before the opening of the session.

SPECIAL SESSIONS

Drawing up of the provisional agenda

Rule 4

The provisional agenda for a special session shall consist only of those items proposed for consideration in the request for holding the session.

REGULAR AND SPECIAL SESSIONS

Adoption of the agenda

Rule 5

At the beginning of each session, the Commission shall adopt its agenda for the session on the basis of the provisional agenda. The Commission may, however, in urgent circumstances, place additional items of an important or urgent character on the agenda at any time during a session.

III. REPRESENTATION

Representation

Rule 6

1. Each member of the Commission, and each territory referred to in article 43 of the Convention, shall be represented by designated representatives and such alternate representatives and advisers as may be required by the delegation.

2. Observers referred to in rule 32 shall be represented by designated representatives and by such alternate representatives and advisers as may be required.

3. The names of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Director if possible not later than twenty-four hours after the opening of the session in such standard form of designation as the Executive Director shall establish.

Official contact

Rule 7

Each member of the Commission, and each territory referred to in article 43 of the Convention, shall, as soon as possible after the adoption of these rules, notify the Executive Director of one or more Official Contacts who shall, for the purposes of official communications between the Commission and the member or territory concerned, including all notifications and communications made pursuant to these rules, be the official point of contact.

IV. OFFICERS

Elections

Rule 8

At its first regular session, and each two years thereafter, the Commission shall elect a Chairman and a Vice-Chairman from among the Contracting Parties to the Convention, who shall be of different nationalities. Subject to rule 10, they shall hold office for a period of two years and shall be eligible for re-election.

Functions of the Chairman

Rule 9

1. In addition to exercising the powers conferred upon him or her elsewhere in these rules or by the Convention, the Chairman shall declare the opening and closing of each plenary meeting of the Commission, direct the discussions in plenary meeting, ensure observance of these rules, accord the right to speak, announce the list of speakers and, with the consent of the Commission, declare the list of speakers closed, put questions and announce decisions. He or she shall rule on points of order and, subject to these rules, shall have complete control of the proceedings at any meeting and over the maintenance of order thereat. The Chairman may, in the course of discussion of an item, propose to the Commission the limitation of the time to be allowed to speakers, the limitation of the number of times each representative may speak, the closure of the list of speakers or the closure of the debate. He or she may also propose the suspension or the adjournment of the meeting or the adjournment of the debate on the item under discussion.

2. The Chairman, in the exercise of his or her functions, remains under the authority of the Commission.

3. The Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman.

Replacement of the Chairman or Vice-Chairman

Rule 10

If the Chairman or Vice-Chairman is unable to carry out his or her functions or ceases to be a representative of a Contracting Party, or if a Contracting Party of which he or she is a representative ceases to be a member of the Commission, he or she shall cease to hold office and a new Chairman or Vice-Chairman shall be elected for the unexpired term.

V. SECRETARIAT

Duties of the Executive Director

Rule 11

1. The Executive Director, as the chief administrative officer of the Commission, shall act in that capacity in all meetings of the Commission and of its subsidiary bodies. The Executive Director may designate an officer of the Secretariat to act as his or her representative. The Executive Director shall discharge such other responsibilities as are assigned to him or her under the Convention or by the Commission in the conduct of its business.

2. The Executive Director shall provide and direct, with due regard to principles of economy and efficiency, the staff required by the Commission and its subsidiary bodies.

3. The Executive Director shall keep the members of the Commission informed of any issues or matters which may be of interest to the Commission.

Duties of the Secretariat

Rule 12

The Secretariat shall carry out the duties and perform the functions set out in article 15 of the Convention. In particular, the Secretariat shall receive, reproduce and distribute documents, reports and decisions of the Commission and its subsidiary bodies, prepare and circulate summary reports of the meetings of the Commission in accordance with rule 34; have the custody and proper preservation of the documents in the archives of the Commission; distribute all documents of the Commission to the members of the Commission, the territories referred to in article 43 of the Convention, and observers referred to in rule 32; and, generally, perform all other work which the Commission may require.

Report of the Executive Director on the work of the Commission

Rule 13

The Executive Director shall make an annual report, and such supplementary reports as are necessary, to the Commission at its regular session on the work of the Commission. The Executive Director shall communicate the annual report to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 32 at least forty-five days before the opening of the regular session.

VI. CONDUCT OF PLENARY MEETINGS

Quorum

Rule 14

The Chairman may declare a meeting of the Commission open and permit the debate to proceed when at least three-fourths of the members of the Commission are present.

Speeches

Rule 15

No representative may address the Commission without having previously obtained the permission of the Chairman. The Chairman shall call upon speakers in the order in which they signify their desire to speak, except that the Chairman of a subsidiary body may be accorded precedence for the purpose of explaining the conclusions arrived at by that body. The Chairman may call a speaker to order if his or her remarks are not relevant to the subject under discussion.

Statements by the Secretariat

Rule 16

The Executive Director, or a member of the Secretariat designated by him as his representative, may, at any time with the permission of the Chairman, make either oral or written statements to the Commission concerning any question under consideration by it.

Points of order

Rule 17

During the discussion of any matter, a member of the Commission may rise to a point of order, and the point of order shall be immediately decided by the Chairman in accordance with these rules of procedure. A member of the Commission may appeal against the ruling of the Chairman. In such a case, the appeal shall be immediately put to the vote, and the Chairman's ruling shall stand unless overruled by a majority of the members of the Commission present and voting. A representative rising to a point of order may not speak on the substance of the matter under discussion.

Procedural motions

Rule 18

1. Subject to rule 17, a member of the Commission may at any time make any of the following procedural motions. Such motions shall have precedence in the following order over all other proposals or motions before the meeting:

(a) To suspend the meeting;

(b) To adjourn the meeting;

(c) To adjourn the debate on the item under discussion;

(d) To close the debate on the item under discussion.

2. Any motion calling for a decision on the competence of the Commission to adopt a proposal submitted to it shall be put to the vote before a vote is taken on the proposal in question.

Proposals and amendments

Rule 19

Proposals and amendments shall normally be circulated in writing to the Executive Director, who shall circulate copies to the delegations. As a general rule, no proposal shall be discussed or put to the vote at any meeting of the Commission unless copies of it have been circulated to all delegations not later than the day preceding the meeting. The Chairman may, however, permit the discussion and consideration of amendments, or of motions as to procedure, even though such amendments and motions have not been circulated or have only been circulated the same day.

VII. DECISION-MAKING

Voting rights

Rule 20

Each member of the Commission shall have one vote, unless otherwise provided in the Convention.

Decision-making

Rule 21

1. As a general rule, decision-making in the Commission shall be by consensus. For the purposes of these rules, "consensus" means the absence of any objection.

2. If all efforts to reach a decision by consensus have been exhausted, decisions by voting in the Commission on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority of those present and voting provided that such majority includes a three-fourths majority of the members of the South Pacific Forum Fisheries Agency present and voting and a three-fourths majority of non-members of the South Pacific Forum Fisheries Agency present and voting and provided further that in no circumstances shall a proposal be defeated by two or fewer votes in either chamber. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Commission by consensus or by the majority required for decisions on questions of substance.

3. If it appears to the Chairman that all efforts to reach a decision by consensus have been exhausted, the Chairman shall fix a time during that session of the Commission for taking the decision by a vote. At the request of any member, the Commission may, by a majority of those present and voting, defer the taking of a decision until such time during the same session as the Commission may decide. At that time, the Commission shall take a vote on the deferred question. This rule may be applied only once to any question.

4. Elections of individuals shall be conducted in accordance with article 20 of the Convention. In the event of a vote, notwithstanding the provisions of rule 27, the election shall be conducted by secret ballot. If no candidate obtains in the first ballot the necessary majorities of the votes cast, a second ballot restricted to the two candidates obtaining the largest number of votes shall be taken. If in the second ballot the votes are equally divided, the balloting shall be continued until one candidate secures the necessary majorities of the votes cast.

5. For the purposes of these rules, the phrase “those present and voting” means members of the Commission present and casting an affirmative or negative vote. Members of the Commission who abstain from voting shall be considered as not voting.

Decisions requiring a consensus

Rule 22

Decisions on questions of substance arising under the following provisions of the Convention shall be taken by consensus: article 9, paragraph 8 (adoption of rules of procedure), article 10, paragraph 4 (decisions relating to the allocation of total allowable catch or the total level of fishing effort), article 17, paragraph 2 (adoption of financial regulations), article 18, paragraphs 1 and 2 (adoption of the budget and a scheme for assessment of contributions to the budget), and article 40 (amendments to the Convention).

Method of voting

Rule 23

The Commission shall vote by show of hands or by standing, but any member of the Commission may request a roll-call. The roll-call shall be taken in the alphabetical order of the names of the members of the Commission participating in that session, beginning with the member whose name is drawn by lot by the Chairman. The name of each member of the Commission shall be called in any roll-call, and one of its representatives shall reply “yes”, “no”

or “abstention”. The result of the voting shall be inserted in the record in the alphabetical order of the names of the members. [3]

Conduct during voting

Rule 24

After the Chairman has announced the commencement of voting, no member of the Commission may interrupt the voting, except that members of the Commission may interrupt on a point of order in connection with the actual conduct of voting.

Explanation of vote

Rule 25

Members of the Commission may make brief statements consisting solely of explanations of their votes before the voting has commenced or after the voting has been completed. The Chairman may limit the time to be allowed for such statements. A member of the Commission sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended.

Division of proposals and amendments

Rule 26

A member of the Commission may move that parts of a proposal or of an amendment should be voted on separately. If objection is made to the request for a division, the motion for division shall be voted upon. Permission to speak on the motion for division shall be given only to two speakers in favour and two speakers against. If the motion for division is carried, those parts of the proposal or of the amendment which are approved shall then be put to the vote as a whole. If all operative parts of the proposal or of the amendment have been rejected, the proposal or the amendment shall be considered to have been rejected as a whole.

Order of voting on amendments

Rule 27

When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the Commission shall first vote on the amendment furthest removed in substance from the original proposal and then on to the amendment next furthest removed therefrom and so on until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter amendment shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted upon. A motion is considered an amendment to a proposal if it adds to, deletes from or revises part of the proposal.

Order of voting on proposals

Rule 28

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[3] A procedure for voting by mail or forms of electronic communication was proposed by some delegations, but was not acceptable to others. Further discussion of this matter is needed. The annex to the present paper discusses some possible options for mail voting procedures.

If two or more proposals relate to the same question, the Commission shall, unless it decides otherwise, vote on the proposals in the order in which they have been submitted. The Commission may, after each vote on a proposal, decide whether to vote on the next proposal.

VIII. RULES OF PROCEDURE OF SUBSIDIARY BODIES

Rules of procedure

Rule 29

1. Subject to the provisions of the Convention, each subsidiary body of the Commission may formulate and submit to the Commission for approval such rules as may be necessary for the efficient conduct of its functions.

2. Pending the approval of such rules, and except as otherwise provided in the Convention, these rules of procedure apply, mutatis mutandis, to the proceedings of subsidiary bodies, including the Scientific Committee, the committee referred to in article 11, paragraph 7, of the Convention, and the Technical and Compliance Committee.

IX. REPORTS OF MEETINGS

Reports of meetings

Rule 30

1. Summary reports of the sessions of the Commission shall be maintained in such form as the Commission shall decide. As a general rule, such reports shall be circulated as soon as possible, to all representatives, who shall inform the Secretariat within thirty working days after the circulation of the summary report of any changes they wish to have made.

2. The Executive Director shall communicate the text of all decisions adopted by the Commission pursuant to article 20 of the Convention to all members of the Commission and to each territory referred to in article 43, of the Convention, and to observers referred to in rule 32, within seven working days following the adoption of such decision.

X. SUSPENSION OF RIGHTS

Suspension of the exercise of voting rights

Rule 31

A contributor to the budget of the Commission which is in arrears in the payment of its financial contributions to the Commission shall not participate in the taking of decisions by the Commission if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The Commission may, nevertheless, permit such a contributor to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the contributor.

XI. OBSERVERS

Observers

Rule 32

1. The following may participate as observers in the Commission:

(a) States, entities and fishing entities that participated in the Multilateral High Level Conference on the Conservation and Management of the Highly Migratory Fish Stocks, which are not members of the Commission;

(b) Any entity referred to in article 305, paragraph 1, subparagraphs (c), (d) and (e) of the 1982 United Nations Convention on the Law of the Sea which is situated in the Convention Area, which is not a member of the Commission;

(c) Other States with an interest in the work of the Commission, invited by the Commission, which are not members of the Commission;

(d) The Food and Agriculture Organization of the United Nations and other relevant intergovernmental organizations and South Pacific regional organizations invited by the Commission;

(e) Non-governmental organizations concerned with matters relevant to the implementation of the Convention admitted by the Commission pursuant to paragraph 4 of this rule which have demonstrated their interest in matters under consideration by the Commission.

2. Observers referred to in paragraph 1 (a), (b) and (c) of this rule may participate subject to the provisions of these rules in the deliberations of the Commission and its subsidiary bodies but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

3. Observers referred to in paragraph 1 (d) of this rule may participate in the deliberations of the Commission and its subsidiary bodies upon the invitation of the Chairman on questions within the scope of their competence, but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

4. A non-governmental organization desiring to participate as an observer shall notify the Executive Director in writing of its desire to participate at least fifty days in advance of the session. The Executive Director shall notify the members of the Commission of such request at least 45 days prior to the opening of the session at which the request is to be considered. Non-governmental organizations that have made such notification to the Executive Director shall be invited to participate in the session as observers unless a majority of the members of the Commission objects to the request in writing at least twenty days before the opening of the session. Such observer status shall remain in effect for future sessions unless the Commission decides otherwise.

5. Observers referred to in paragraph 1 (e) of this rule may sit at open meetings of the Commission and its subsidiary bodies and upon the invitation of the Chairman and subject to the approval of the Commission or the relevant subsidiary body may make oral statements on matters within the scope of their activities. Written statements submitted by observers referred to in paragraph 1 (e) of this rule within the scope of their activities which are relevant to the work of the Commission may, subject to the approval of the Chairman, be distributed at meetings of the Commission.

6. The Executive Director may require observers referred to in paragraph 1 (e) of this rule to pay reasonable fees to cover the administrative costs attributable to their attendance at meetings of the Commission.

XII. AMENDMENTS

Method of amendment

Rule 33

These rules of procedure may be amended by a decision of the Commission, taken by consensus.

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Annex

The Use of Mail Voting Procedures by Regional Fisheries Management Organizations

Introduction

1. Many international organizations with living marine resource conservation and management responsibilities have the authority to make decisions intersessionally by use of the mail vote, or other means of communication. This authority has historically been used to deal with urgent conservation and management needs and to avoid the expense to the organization and its members of holding an intersessional meeting.

2. The MHLC Convention as well as the Preparatory Conference have addressed the principles of efficiency and cost-effectiveness and the desire for the Commission to operate as economically as possible. It is consistent with these principles to examine the possibility of providing for a decision-making mechanism that could operate without the need to convene a meeting of the Commission. At the same time, the use of mail voting procedures virtually eliminates the discussion and other valuable interaction that occurs at meetings. That being the case, it is appropriate that their use be delimited.

3. An examination of mail voting procedures should include a review of the experiences of other organizations, particularly with a mind to desirable safeguards against the abuse of such procedures. Although resort to such procedures should not affect in any way the decision-making provisions in the Convention, a procedure should clearly specify roles and responsibilities, the determination of a quorum, need for adequate prior notice and other matters of timing, etc.

Other Organizations

4. Of the existing tuna commissions, the Inter-American Tropical Tuna Commission (IATTC), the Commission for the Conservation of Atlantic Tuna (ICCAT), and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) have mail voting procedures, while the Indian Ocean Tuna Commission (IOTC) does not. Other regional fisheries management organizations that have mail voting procedures include: the Northwest Atlantic Fisheries Organization (NAFO); the North Atlantic Salmon Conservation Organization (NASCO); the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR); and the North Pacific Anadromous Fish Commission (NPAFC). Although most bilateral arrangements find it unnecessary to have mail voting procedures, the Pacific Salmon Commission (PSC) does have them. Another observation is that the more recently written mail voting provisions in rules of procedure tend to be more detailed.

5. In the IATTC, the mail voting provision can be invoked either at will or in an emergency. It reads “between meetings of the Commission or in case of emergency, a vote of the High Contracting Parties may be obtained by mail, or other means of communication.” The IATTC uses the consensus decision rule and has used a mail vote on occasions when a voting member did not attend a meeting but the Commission needed its approval for actions to go forward. The IATTC also relies on a large number of permanent and ad hoc subgroups, which always consist of representatives of all members. There have been many occasions when the subgroups have reached an agreement, but that agreement cannot become binding until the Commission formally approves it. When such agreements cannot or should not wait for implementation until the annual meeting occurs, they have been put to a mail vote. The main value of the mail vote is to avoid

calling for a special meeting, which often is difficult to arrange in a timely manner and is always logistically difficult and expensive.

6. The ICCAT provision is more narrow: "Between meetings of the Commission, in case of special necessity, votes may be taken by mail or other means of communication. Such votes shall be transmitted to the Chairman of the Commission by the correspondent of each member country." The most recent use of this procedure occurred when the 2001 annual meeting was unable to complete its business and a variety of decisions, including some catch limits, in various stages of development, were not brought forward for final adoption. As an alternative to staging another meeting, and desiring at least in some cases to avoid an absence of catch limits, ICCAT employed its mail voting procedure. This experience suggests that it should always be possible to utilize a mail voting procedure if an annual or special meeting of the Commission so decides.

7. The CCSBT provision reads, "Where necessary when the Commission is not in session, decisions of the Commission shall be taken by a unanimous vote of the Members effected by post or other means of textual communication including facsimile. In circumstances where the Chair is satisfied that a Member has received a proposal, and that Member has not responded within 21 days to the proposal, the Member shall be taken to have responded to that proposal in the affirmative." Apparently, CCSBT has not used this provision.

8. NAFO has used its mail voting procedures very recently. They are more elaborate than most others examined in this paper, specifying to whom the Executive Secretary directs the request for vote, the duration of the voting period, responsibilities of Contracting Parties under the procedures, and the determination of a quorum under the procedures. The standard for invoking these procedures is "in case of emergency between meetings," and the vote may be taken "by mail or other means of communication." NAFO also has a long-standing practice of quota transfers between Contracting Parties, which is always carried out through mail voting. The 2001 annual meeting of NAFO was scheduled to take place less than 2 weeks after the September terrorist attacks in the United States and was therefore cancelled. In light of the fact that the scientific advice relevant to conservation measures expected to have been decided for 2002 was unchanged from the previous year, NAFO used its mail voting authority to "roll-over" its applicable conservation measures from 2001 to 2002. It then held a truncated special meeting to conduct its other business.

9. NASCO also invokes the "special necessity" standard as the main condition of mail voting but introduces the discretion of the head elected officer. For its General Council, NASCO's rule reads: "Between meetings of the Council and in case of special necessity to be determined by the President, votes may be taken by mail or by other means of textual communication. Such votes shall be considered as roll call votes. The Secretary shall immediately notify the members of the Council of the results of such votes." There is no recent history of NASCO using its mail voting procedures.

10. CCAMLR has relatively elaborate provisions for mail voting. Between meetings, the taking of decisions and votes on any proposal may be carried out "when necessary." Either a member or the Chairman can request a mail vote, and the proposer recommends which of CCAMLR's two decision-making rules should apply to the substance of the proposal (consensus on matters of substance and a simple majority of members present and voting on all other matters). The provisions specify roles and responsibilities for the Chairman, Executive Secretary, and members; timelines; and separate tracks depending on the applicable decision rule. If the proposal requires consensus for adoption, there are provisions for members to request additional time for consideration or to take the position that it is not necessary for a decision to be taken in

the period between meetings. CCAMLR's provisions for conducting mail votes reflect a number of similarities with the MHLC situation and concerns that have been expressed during the Preparatory Conference. These provisions have never been used for mail votes on substantive matters.

11. The NPAFC's mail voting procedures are very simple: "Between meetings of the Commission, votes may be taken by mail or other means of communication. Such votes shall be transmitted to the Commission by the Point of Contact or the head of delegation of each Party." NPAFC has never used these procedures.

12. The PSC mail voting procedures provide that: "Between meetings of the Commission, and in cases of special necessity determined by the Chair in consultation with the Vice-Chair, a decision may be taken by mail, other means of textual communication or telephone conference. The Executive Secretary shall promptly notify the Commissioners and Alternate Commissioners of the results of the decisions." The PSC has used this authority to take decisions by telephone in the period between meetings.

Conclusion

13. Most international tuna conservation and management organizations and a large number of other regional fisheries management organizations possess the authority to take decisions intersessionally by mail voting procedures. Generally, this is set out in rules of procedure. The use of these authorities is predicated on the existence of an emergency or special necessity for taking action and the desire or necessity to avoid calling a special session of the organization.

14. Based on the mail voting procedures of existing regional fisheries management organizations, and their experience in using them, it would be possible to construct a mail voting procedure for MHLC purposes that was transparent, provided a cost-effective alternative format for taking pressing decisions, yet also provided adequate protections for the rights and obligations of Commission members. Such a procedure should give due consideration to:

- roles and responsibilities of members, the Chairman, and the Executive Secretary;
- determination of a quorum;
- determination of appropriate circumstances for conducting a mail vote and who makes this determination, including a threshhold for the determination, e.g., urgency or special necessity, and incentives for all decisions to be taken at meetings, if possible; and
- an explicit timeline(s) extending from the emergence of a proposal to implementation of the decision, if appropriate, including all intervening steps to be followed unless decided otherwise. It likely would be appropriate to develop two timelines tailored to the two decision rules provided for in Article 20 of the Convention, such as CCAMLR has done to meet its needs.

WCPFC Preparatory Conference
Fourth session
Nadi, Fiji Islands
5 – 9 May 2003

WCPFC/PrepCon/WP.1/Rev.3*
4 April 2003

REVISED DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

1. It will be recalled that a set of draft rules of procedure for the Commission was prepared for the first session of the Preparatory Conference by the interim secretariat. That draft was prepared on the basis of standard rules of procedure for international organizations world wide, taking into account the considerations identified in document WCPFC/PrepCon/BP.3. Subsequently, the draft was revised taking into account discussions on the rules of procedure in an informal working group of the whole during the first and second sessions of the Preparatory Conference respectively.

2. During the third session, the Conference met in informal session on 21 November to further review the draft rules of procedure (WCPFC/PrepCon/WP.1/Rev.2). The Conference completed a third reading of the draft rules and it was agreed that the interim secretariat would produce a further revision of the document for consideration at a later time.

3. The present revised draft is intended to reflect the comments, suggestions and proposals made by delegations during the third session. Among the proposals that were introduced, and which require further discussion, were the following:

(a) a proposal by the delegation of Japan to introduce special rules relating to the committee established under article 11, paragraph 7, of the Convention (introduced in the present draft as rule 31 and Annex I);

(b) a proposal by the delegations of France, New Zealand and the United States of America for draft rules of procedure on the participation of territories pursuant to article 43 of the Convention (introduced in the present draft as rule 34 and Annex II); and

(c) a proposal by the delegations of Japan, China and Chinese Taipei to add a footnote to rule 23.

As there was insufficient time to consider these proposals in detail, it was agreed to consider them in more detail at the next session of the Conference.

4. It will also be recalled that, at the second session, several delegations proposed the introduction of procedures for voting by mail. In light of those proposals, a discussion paper (reproduced as appendix I to the present document) on the use of mail voting procedures by regional fishery management organizations was appended to document

WCPFC/PrepCon/WP.1/Rev.2. It was agreed that this issue should be considered in more detail and a draft of such procedures tabled in due course. A possible draft for discussion, developed by interested delegations on the basis of the considerations outlined in the discussion paper, appears in appendix II.

5. Other aspects of the rules of procedure upon which further discussion may be required include the issue of quorum (rule 14), rules of procedure of subsidiary bodies (rule 30), and observers (rule 35).

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DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

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I. SESSIONS

REGULAR AND SPECIAL SESSIONS

Holding of regular and special sessions

Rule 1

1. The Commission shall hold a regular annual session.[1] Before the end of each regular annual session, the Commission shall, if possible, decide on the date of commencement and the approximate duration of the next regular annual session.

2. The Executive Director shall notify the members of the Commission,[2] each territory referred to in article 43 of the Convention, and observers referred to in rule 35, of the date and place and provisional agenda of the session as early as possible but at least ninety days in advance of the opening of a regular annual session.

3. In exceptional circumstances, the Commission may hold special sessions in accordance with this paragraph. Any member of the Commission may request the Executive Director to convene a special session of the Commission. The Executive Director shall immediately inform the other members of the Commission of the request and inquire whether they concur with it. If within thirty days of the date of communication by the Executive Director a majority of the members of the Commission concur in the request, a special session of the Commission shall be convened by the Executive Director and it shall meet no earlier than thirty

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[1] In these rules, unless otherwise stated, 'regular annual session' means the annual meeting of the Commission specified in article 9, paragraph 3 of the Convention.

[2] In accordance with article 9, paragraph 2, of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereafter referred to as "the Convention"), a fishing entity referred to in the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, which has agreed to be bound by the regime established by the Convention in accordance with the provisions of Annex I to the Convention, may participate in the work, including decision-making, of the Commission in accordance with the provisions of article 9 and Annex I and subject to the provisions of article 34, paragraph 4. According to paragraph 2 of Annex I, such fishing entity shall participate in the work of the Commission, including decision-making, and shall comply with the obligations under the Convention. References thereto by the Commission or members of the Commission include, for the purposes of the Convention, such fishing entity as well as Contracting Parties.

days and no later than ninety days after the receipt of such concurrence. The Executive Director shall notify the members of the Commission, each territory referred to in article 43 of the Convention, and observers referred to in rule 35, of the date and place and provisional agenda for a special session as early as possible but at least twenty-five days in advance of the special session.

4. The Commission shall meet at the headquarters of the Commission unless it decides otherwise.

II. AGENDA

REGULAR SESSIONS

Drawing up of the provisional agenda

Rule 2

1. The provisional agenda for a regular session shall be drawn up by the Executive Director, in consultation with the Chairman.

2. The provisional agenda of a regular session shall include:

(a) The annual report of the Executive Director on the work of the Commission;

(b) Items the inclusion of which has been requested by the Commission at a previous session;

(c) Items proposed by any member of the Commission;

(d) Items pertaining to the budget for the next financial year, the report on the accounts for the last financial year and the auditors' report;

(e) Recommendations of the Scientific Committee and any recommendations of the scientific experts pursuant to article 13 of the Convention;

(f) Recommendations of the Technical and Compliance Committee;

(g) Recommendations of the committee established pursuant to article 11, paragraph 7, of the Convention;

(h) Consideration of the special requirements of developing States pursuant to Part VIII of the Convention; and

(i) Items which the Executive Director deems it necessary to put before the Commission.

Supplementary items

Rule 3

Any member of the Commission, the Chairman, or the Executive Director may, at least thirty days before the date fixed for the opening of a regular session request the inclusion of supplementary items in the agenda. A request for the inclusion of a supplementary item on the

provisional agenda shall be accompanied by a written explanation of the proposed supplementary item. Such items shall be placed on a supplementary list, which shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 35 at least twenty days before the opening of the session.

SPECIAL SESSIONS

Drawing up of the provisional agenda

Rule 4

The provisional agenda for a special session shall include only of those items proposed for consideration in the request for holding the session.

REGULAR AND SPECIAL SESSIONS

Adoption of the agenda

Rule 5

At the beginning of each session, the Commission shall adopt its agenda for the session on the basis of the provisional agenda. The Commission may, however, in urgent circumstances, place additional items of an important or urgent character on the agenda at any time during a session.

III. REPRESENTATION

Representation

Rule 6

1. Each member of the Commission, and each territory referred to in article 43 of the Convention, shall be represented by designated representatives and such alternate representatives and advisers as may be required by the delegation.

2. Observers referred to in rule 35 shall be represented by designated representatives and by such alternate representatives and advisers as may be required.

3. The names of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Director if possible not later than twenty-four hours after the opening of the session in such standard form of designation as the Executive Director shall establish.

Official contact

Rule 7

Each member of the Commission, and each territory referred to in article 43 of the Convention, shall, as soon as possible after the adoption of these rules, notify the Executive Director of one or more Official Contacts who shall, for the purposes of official communications between the Commission and the member or territory concerned, including all notifications and communications made pursuant to these rules, be the official points of contact.

IV. OFFICERS

Elections

Rule 8

At its first regular session, and each two years thereafter, the Commission shall elect a Chairman and a Vice-Chairman from among the Contracting Parties to the Convention, who shall be of different nationalities. Except at the first regular session of the Commission, the Chairman and Vice-Chairman shall assume office at the end of the session at which they are elected. Subject to rule 10, they shall hold office for a period of two years and shall be eligible for re-election.

Functions of the Chairman

Rule 9

1. In addition to exercising the powers conferred upon him or her elsewhere in these rules or by the Convention, the Chairman shall declare the opening and closing of each plenary meeting of the Commission, direct the discussions in plenary meeting, ensure observance of these rules, accord the right to speak, announce the list of speakers and, with the consent of the Commission, declare the list of speakers closed, put questions and announce decisions. He or she shall rule on points of order and, subject to these rules, shall have complete control of the proceedings at any meeting and over the maintenance of order thereat. The Chairman may, in the course of discussion of an item, propose to the Commission the limitation of the time to be allowed to speakers, the limitation of the number of times each representative may speak, the closure of the list of speakers or the closure of the debate. He or she may also propose the suspension or the adjournment of the meeting or the adjournment of the debate on the item under discussion.

2. The Chairman, in the exercise of his or her functions, remains under the authority of the Commission.

3. The Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman.

Replacement of the Chairman or Vice-Chairman

Rule 10

If the Chairman or Vice-Chairman is unable to carry out his or her functions or ceases to be a representative of a Contracting Party, or if a Contracting Party of which he or she is a representative ceases to be a member of the Commission, he or she shall cease to hold office and a new Chairman or Vice-Chairman shall be elected for the unexpired term.

V. SECRETARIAT

Duties of the Executive Director

Rule 11

1. The Executive Director, as the chief administrative officer of the Commission, shall act in that capacity in all meetings of the Commission and of its subsidiary bodies. The Executive Director may designate an officer of the Secretariat to act as his or her representative. The

Executive Director shall discharge such other responsibilities as are assigned to him or her under the Convention or by the Commission in the conduct of its business.

2. The Executive Director shall provide and direct, with due regard to principles of economy and efficiency, the staff required by the Commission and its subsidiary bodies.

3. The Executive Director shall keep the members of the Commission informed of any issues or matters which may be of interest to the Commission.

Duties of the Secretariat

Rule 12

The Secretariat shall carry out the duties and perform the functions set out in article 15 of the Convention. In particular, the Secretariat shall receive, reproduce and distribute documents, reports and decisions of the Commission and its subsidiary bodies, prepare and circulate summary reports of the meetings of the Commission in accordance with rule 32; have the custody and proper preservation of the documents in the archives of the Commission; distribute all documents of the Commission to the members of the Commission, the territories referred to in article 43 of the Convention, and observers referred to in rule 35; and, generally, perform all other work which the Commission may require.

Report of the Executive Director on the work of the Commission

Rule 13

The Executive Director shall make an annual report, and such supplementary reports as are necessary, to the Commission at its regular session on the work of the Commission. The Executive Director shall communicate the annual report to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 35 at least forty-five days before the opening of the regular session.

VI. CONDUCT OF PLENARY MEETINGS

Quorum

Rule 14

The Chairman may declare a meeting of the Commission open and permit the debate to proceed when at least three-fourths of the members of the Commission are present.

Rule 15

Open and closed meetings

1. The meetings of the Commission shall be open unless the Commission decides that exceptional circumstances require that meetings be held in closed session.

2. As a general rule, meetings of subsidiary bodies shall be held in closed session.

3. All decisions of the Commission taken at a closed session shall be announced at an early open meeting of the Commission. At the end of a closed meeting of a subsidiary body, the Chairman may issue a communiqué through the Executive Director.

Speeches

Rule 16

No representative may address the Commission without having previously obtained the permission of the Chairman. The Chairman shall call upon speakers in the order in which they signify their desire to speak, except that the Chairman of a subsidiary body may be accorded precedence for the purpose of explaining the conclusions arrived at by that body. The Chairman may call a speaker to order if his or her remarks are not relevant to the subject under discussion.

Statements by the Secretariat

Rule 17

The Executive Director, or a member of the Secretariat designated by him as his representative, may, at any time with the permission of the Chairman, make either oral or written statements to the Commission concerning any question under consideration by it.

Points of order

Rule 18

During the discussion of any matter, a member of the Commission may rise to a point of order, and the point of order shall be immediately decided by the Chairman in accordance with these rules of procedure. A member of the Commission may appeal against the ruling of the Chairman. In such a case, the appeal shall be immediately put to the vote, and the Chairman's ruling shall stand unless overruled by a majority of the members of the Commission present and voting. A representative rising to a point of order may not speak on the substance of the matter under discussion.

Procedural motions

Rule 19

1. Subject to rule 18, a member of the Commission may at any time make any of the following procedural motions. Such motions shall have precedence in the following order over all other proposals or motions before the meeting:

(a) To suspend the meeting;

(b) To adjourn the meeting;

(c) To adjourn the debate on the item under discussion;

(d) To close the debate on the item under discussion.

2. Any motion calling for a decision on the competence of the Commission to adopt a proposal submitted to it shall be put to the vote before a vote is taken on the proposal in question.

Proposals and amendments

Rule 20

Proposals and amendments shall normally be circulated in writing to the Executive Director, who shall circulate copies to the delegations. As a general rule, no proposal shall be discussed or put to the vote at any meeting of the Commission unless copies of it have been circulated to all delegations not later than the day preceding the meeting. The Chairman may, however, permit the discussion and consideration of amendments, or of motions as to procedure, even though such amendments and motions have not been circulated or have only been circulated the same day.

VII. DECISION-MAKING

Voting rights

Rule 21

Each member of the Commission shall have one vote, unless otherwise provided in the Convention.

Decision-making

Rule 22

1. As a general rule, decision-making in the Commission shall be by consensus. For the purposes of these rules, "consensus" means the absence of any formal objection made at the time the decision was taken.

2. If all efforts to reach a decision by consensus have been exhausted, decisions by voting in the Commission on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority of those present and voting provided that such majority includes a three-fourths majority of the members of the South Pacific Forum Fisheries Agency present and voting and a three-fourths majority of non-members of the South Pacific Forum Fisheries Agency present and voting and provided further that in no circumstances shall a proposal be defeated by two or fewer votes in either chamber. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Commission by consensus or by the majority required for decisions on questions of substance.

3. If it appears to the Chairman that all efforts to reach a decision by consensus have been exhausted, the Chairman shall fix a time during that session of the Commission for taking the decision by a vote. At the request of any member, the Commission may, by a majority of those present and voting, defer the taking of a decision until such time during the same session as the Commission may decide. At that time, the Commission shall take a vote on the deferred question. This rule may be applied only once to any question.

4. Elections of individuals shall be conducted in accordance with article 20 of the Convention. In the event of a vote, notwithstanding the provisions of rule 24, the election shall be conducted by secret ballot. If no candidate obtains in the first ballot the necessary majorities of the votes cast, a second ballot restricted to the two candidates obtaining the largest number of votes shall be taken. If in the second ballot the votes are equally divided, the balloting shall be continued until one candidate secures the necessary majorities of the votes cast.

5. For the purposes of these rules, the phrase "those present and voting" means members of the Commission present and casting an affirmative or negative vote. Members of the Commission who abstain from voting shall be considered as not voting.

Decisions requiring a consensus

Rule 23

Decisions on questions of substance arising under the following provisions of the Convention shall be taken by consensus: article 9, paragraph 8 (adoption, and amendment, of rules of procedure), article 10, paragraph 4 (decisions relating to the allocation of total allowable catch or the total level of fishing effort)[3], article 17, paragraph 2 (adoption of financial regulations), article 18, paragraphs 1 and 2 (adoption of the budget and a scheme for assessment of contributions to the budget), and article 40 (amendments to the Convention).

Method of voting

Rule 24

The Commission shall vote by show of hands or by standing, but any member of the Commission may request a roll-call. The roll-call shall be taken in the alphabetical order of the names of the members of the Commission participating in that session, beginning with the member whose name is drawn by lot by the Chairman. The name of each member of the Commission shall be called in any roll-call, and one of its representatives shall reply "yes", "no" or "abstention". The result of the voting shall be inserted in the record in the alphabetical order of the names of the members. [4]

Conduct during voting

Rule 25

After the Chairman has announced the commencement of voting, no member of the Commission may interrupt the voting, except that members of the Commission may interrupt on a point of order in connection with the actual conduct of voting.

Explanation of vote

Rule 26

Members of the Commission may make brief statements consisting solely of explanations of their votes before the voting has commenced or after the voting has been completed. The Chairman may limit the time to be allowed for such statements. A member of the Commission sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended.

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[3] 'Allocation' includes allocation in terms of the members of the Commission, areas, fisheries and fish sizes.

[4] A procedure for voting by mail or forms of electronic communication was proposed by some delegations, but was not acceptable to others. Further discussion of this matter is needed. The appendices to the present paper discusses some possible options for mail voting procedures.

Division of proposals and amendments

Rule 27

A member of the Commission may move that parts of a proposal or of an amendment should be voted on separately. If objection is made to the request for a division, the motion for division shall be voted upon. Permission to speak on the motion for division shall be given only to two speakers in favour and two speakers against. If the motion for division is carried, those parts of the proposal or of the amendment which are approved shall then be put to the vote as a whole. If all operative parts of the proposal or of the amendment have been rejected, the proposal or the amendment shall be considered to have been rejected as a whole.

Order of voting on amendments

Rule 28

When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the Commission shall first vote on the amendment furthest removed in substance from the original proposal and then on to the amendment next furthest removed therefrom and so on until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter amendment shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted upon. A motion is considered an amendment to a proposal if it adds to, deletes from or revises part of the proposal.

Order of voting on proposals

Rule 29

If two or more proposals relate to the same question, the Commission shall, unless it decides otherwise, vote on the proposals in the order in which they have been submitted. The Commission may, after each vote on a proposal, decide whether to vote on the next proposal.

VIII. RULES OF PROCEDURE OF SUBSIDIARY BODIES

Rules of procedure

Rule 30

1. Subject to the provisions of the Convention, each subsidiary body of the Commission may formulate and submit to the Commission for approval such rules as may be necessary for the efficient conduct of its functions.

2. Pending the approval of such rules, and except as otherwise provided in the Convention, these rules of procedure apply, mutatis mutandis, to the proceedings of subsidiary bodies, including the Scientific Committee and the Technical and Compliance Committee.

The Northern Committee

Rule 31

Notwithstanding all other provisions of these Rules, the committee established pursuant to article 11, paragraph 7, of the Convention, shall function in accordance with the procedures set out in Annex I.

IX. REPORTS OF MEETINGS

Reports of meetings

Rule 32

1. Summary reports of the sessions of the Commission shall be maintained in such form as the Commission shall decide. As a general rule, such reports shall be circulated as soon as possible, to all representatives, who shall inform the Secretariat within thirty working days after the circulation of the summary report of any changes they wish to have made.

2. The Executive Director shall communicate the text of all decisions adopted by the Commission pursuant to article 20 of the Convention to all members of the Commission and to each territory referred to in article 43 of the Convention, and to observers referred to in rule 35, within seven working days following the adoption of such decision.

X. SUSPENSION OF RIGHTS

Suspension of the exercise of voting rights

Rule 33

A contributor to the budget of the Commission which is in arrears in the payment of its financial contributions to the Commission shall not participate in the taking of decisions by the Commission if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The Commission may, nevertheless, permit such a contributor to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the contributor.

XI. PARTICIPATION BY TERRITORIES

Participation by territories

Rule 34

Notwithstanding all other provisions of these Rules, pursuant to article 43 of the Convention, the nature and extent of the participation of the territories listed in article 43, paragraph 1, of the Convention, shall be governed by the rules set out in Annex II.

XI. OBSERVERS

Observers

Rule 35

1. The following may participate as observers in the Commission:

(a) States, entities and fishing entities that participated in the Multilateral High Level Conference on the Conservation and Management of the Highly Migratory Fish Stocks, which are not members of the Commission;

(b) Any entity referred to in article 305, paragraph 1, subparagraphs (c), (d) and (e) of the 1982 United Nations Convention on the Law of the Sea which is situated in the Convention Area, which is not a member of the Commission;

(c) Other States and fishing entities with an interest in the work of the Commission, invited by the Commission, which are not members of the Commission;

(d) The Food and Agriculture Organization of the United Nations and other relevant intergovernmental organizations and South Pacific regional organizations invited by the Commission;

(e) Non-governmental organizations concerned with matters relevant to the implementation of the Convention admitted by the Commission pursuant to paragraph 4 of this rule which have demonstrated their interest in matters under consideration by the Commission.

2. Observers referred to in paragraph 1 (a), (b) and (c) of this rule may participate subject to the provisions of these rules in the deliberations of the Commission and its subsidiary bodies but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

3. Observers referred to in paragraph 1 (d) of this rule may participate in the deliberations of the Commission and its subsidiary bodies upon the invitation of the Chairman on questions within the scope of their competence, but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

4. A non-governmental organization desiring to participate as an observer shall notify the Executive Director in writing of its desire to participate at least fifty days in advance of the session. The Executive Director shall notify the members of the Commission of such request at least 45 days prior to the opening of the session at which the request is to be considered. Non-governmental organizations that have made such notification to the Executive Director shall be invited to participate in the session as observers unless a majority of the members of the Commission objects to the request in writing at least twenty days before the opening of the session. Such observer status shall remain in effect for future sessions unless the Commission decides otherwise.

5. Observers referred to in paragraph 1 (e) of this rule may sit at open meetings of the Commission and its subsidiary bodies and upon the invitation of the Chairman and subject to the approval of the Commission or the relevant subsidiary body may make oral statements on matters within the scope of their activities. Written statements submitted by observers referred to in paragraph 1 (e) of this rule within the scope of their activities which are relevant to the work of the Commission may, subject to the approval of the Chairman, be distributed at meetings of the Commission.

6. The Executive Director may require observers referred to in paragraph 1 (e) of this rule to pay reasonable fees to cover the administrative costs attributable to their attendance at meetings of the Commission.

XII. AMENDMENTS

Method of amendment

Rule 36

These rules of procedure may be amended by a decision of the Commission, taken by consensus.

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Annex I

Rules of procedure relating to the Northern Committee

1. The committee established under article 11, paragraph 7, of the Convention shall be called the Northern Committee. It shall consist of the members situated in the Convention area north of 20° north parallel and the members fishing in that area. Any member of the Commission not represented on the Committee may send a representative to participate in the deliberations of the Committee as an observer.

2. The Northern Committee shall, by consensus, make recommendations on the formulation of conservation and management measures in respect of stocks which occur mostly in the area north of 20° north parallel. Such recommendations shall be consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention. The Commission shall not take a decision with regard to any such measure without a recommendation concerning such measure from the Northern Committee.

3. The Northern Committee shall, by consensus, make recommendations on the implementation for the area north of 20° north parallel of such conservation and management measures as may be adopted by the Commission. Such recommendations shall be consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention.

4. A recommendation of the Northern Committee shall be adopted by the Commission unless the Commission, by the rules of procedure for decision-making on matters of substance, decides to return the recommendation back to the Northern Committee on the grounds that it is not consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention.

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Annex II

Rules of procedure on the nature and extent of participation of territories

1. Territories listed in article 43 of the Convention would be "Participating Territories" once they have the relevant authorization. Such authorization shall be in the form of a declaration, filed with the depositary, by the Contracting Party having responsibility for the international affairs of such Participating Territory.

2. The Declaration would describe the distribution of the Territory's competencies and the extent of its responsibilities. The Declaration should be updated appropriately as the Participating Territory's capacities evolve.

3. Participating Territories have the right to be present and to speak at the meetings of the Commission and its subsidiary bodies and to receive all communications in respect of those meetings. Participating Territories would not have rights which are inconsistent with their territorial status (such as being elected Chair or being counted towards a quorum).

4. In relation to matters over which a Participating Territory has competence, such Territory may make proposals and offer amendments.

5. In relation to matters over which a Participating Territory does not have competence, it may, with the specific authorization of the Contracting Party having responsibility for that Territory's international affairs, make proposals and offer amendments.

6. Additional rights and restrictions on rights shall be determined by the Contracting Parties in rules of procedure, as necessary, consistent with Article 43.

7. In accordance with article 20, of the Convention, the Commission will make all efforts to reach decisions by consensus. Consistent with their full participation in the work of the Commission, all Participating Territories would participate in the Commission's deliberations to reach consensus. Participating Territories' views would be properly considered and taken into account in reaching any decision. Seeking a consensus will be especially important in decisions of economic significance to Participating Territories such as:

(a) decisions on allocation, where a Participating Territory is responsible for the conservation and management of resources in its waters;

(b) decisions on the scale of assessments, where a Participating Territory make independent and voluntary contributions to the Commission's budget.

8. Where a consensus could be reached but for the views of a Participating Territory that has full competence over the resources in its waters (in decisions on allocation) or a Participating Territory that contributes to the Commission's budget (in decisions on budget and the scale of assessments), such a Participating Territory may request an additional period of time of up to twelve hours on the affected agenda item for consultation. Notwithstanding this, a Participating Territory could not block consensus on a proposal.

9. A Participating Territory would need to meet a predetermined standard in order to acquire or exercise the right to vote within the Commission. The standards and the process and criteria for assessing whether the standards have been met would need further discussion and elaboration by the Contracting Parties.

Appendix I

The Use of Mail Voting Procedures by Regional Fisheries Management Organizations

Introduction

1. Many international organizations with living marine resource conservation and management responsibilities have the authority to make decisions intersessionally by use of the mail vote, or other means of communication. This authority has historically been used to deal with urgent conservation and management needs and to avoid the expense to the organization and its members of holding an intersessional meeting.

2. The MHLC Convention as well as the Preparatory Conference have addressed the principles of efficiency and cost-effectiveness and the desire for the Commission to operate as economically as possible. It is consistent with these principles to examine the possibility of providing for a decision-making mechanism that could operate without the need to convene a meeting of the Commission. At the same time, the use of mail voting procedures virtually eliminates the discussion and other valuable interaction that occurs at meetings. That being the case, it is appropriate that their use be delimited.

3. An examination of mail voting procedures should include a review of the experiences of other organizations, particularly with a mind to desirable safeguards against the abuse of such procedures. Although resort to such procedures should not affect in any way the decision-making provisions in the Convention, a procedure should clearly specify roles and responsibilities, the determination of a quorum, need for adequate prior notice and other matters of timing, etc.

Other Organizations

4. Of the existing tuna commissions, the Inter-American Tropical Tuna Commission (IATTC), the Commission for the Conservation of Atlantic Tuna (ICCAT), and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) have mail voting procedures, while the Indian Ocean Tuna Commission (IOTC) does not. Other regional fisheries management organizations that have mail voting procedures include: the Northwest Atlantic Fisheries Organization (NAFO); the North Atlantic Salmon Conservation Organization (NASCO); the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR); and the North Pacific Anadromous Fish Commission (NPAFC). Although most bilateral arrangements find it unnecessary to have mail voting procedures, the Pacific Salmon Commission (PSC) does have them. Another observation is that the more recently written mail voting provisions in rules of procedure tend to be more detailed.

5. In the IATTC, the mail voting provision can be invoked either at will or in an emergency. It reads “between meetings of the Commission or in case of emergency, a vote of the High Contracting Parties may be obtained by mail, or other means of communication.” The IATTC uses the consensus decision rule and has used a mail vote on occasions when a voting member did not attend a meeting but the Commission needed its approval for actions to go forward. The IATTC also relies on a large number of permanent and ad hoc subgroups, which always consist of representatives of all members. There have been many occasions when the subgroups have reached an agreement, but that agreement cannot become binding until the Commission formally approves it. When such agreements cannot or should not wait for implementation until the annual meeting occurs, they have been put to a mail vote. The main value of the mail vote is to avoid

calling for a special meeting, which often is difficult to arrange in a timely manner and is always logistically difficult and expensive.

6. The ICCAT provision is more narrow: "Between meetings of the Commission, in case of special necessity, votes may be taken by mail or other means of communication. Such votes shall be transmitted to the Chairman of the Commission by the correspondent of each member country." The most recent use of this procedure occurred when the 2001 annual meeting was unable to complete its business and a variety of decisions, including some catch limits, in various stages of development, were not brought forward for final adoption. As an alternative to staging another meeting, and desiring at least in some cases to avoid an absence of catch limits, ICCAT employed its mail voting procedure. This experience suggests that it should always be possible to utilize a mail voting procedure if an annual or special meeting of the Commission so decides.

7. The CCSBT provision reads, "Where necessary when the Commission is not in session, decisions of the Commission shall be taken by a unanimous vote of the Members effected by post or other means of textual communication including facsimile. In circumstances where the Chair is satisfied that a Member has received a proposal, and that Member has not responded within 21 days to the proposal, the Member shall be taken to have responded to that proposal in the affirmative." Apparently, CCSBT has not used this provision.

8. NAFO has used its mail voting procedures very recently. They are more elaborate than most others examined in this paper, specifying to whom the Executive Secretary directs the request for vote, the duration of the voting period, responsibilities of Contracting Parties under the procedures, and the determination of a quorum under the procedures. The standard for invoking these procedures is "in case of emergency between meetings," and the vote may be taken "by mail or other means of communication." NAFO also has a long-standing practice of quota transfers between Contracting Parties, which is always carried out through mail voting. The 2001 annual meeting of NAFO was scheduled to take place less than 2 weeks after the September terrorist attacks in the United States and was therefore cancelled. In light of the fact that the scientific advice relevant to conservation measures expected to have been decided for 2002 was unchanged from the previous year, NAFO used its mail voting authority to "roll-over" its applicable conservation measures from 2001 to 2002. It then held a truncated special meeting to conduct its other business.

9. NASCO also invokes the "special necessity" standard as the main condition of mail voting but introduces the discretion of the head elected officer. For its General Council, NASCO's rule reads: "Between meetings of the Council and in case of special necessity to be determined by the President, votes may be taken by mail or by other means of textual communication. Such votes shall be considered as roll call votes. The Secretary shall immediately notify the members of the Council of the results of such votes." There is no recent history of NASCO using its mail voting procedures.

10. CCAMLR has relatively elaborate provisions for mail voting. Between meetings, the taking of decisions and votes on any proposal may be carried out "when necessary." Either a member or the Chairman can request a mail vote, and the proposer recommends which of CCAMLR's two decision-making rules should apply to the substance of the proposal (consensus on matters of substance and a simple majority of members present and voting on all other matters). The provisions specify roles and responsibilities for the Chairman, Executive Secretary, and members; timelines; and separate tracks depending on the applicable decision rule. If the proposal requires consensus for adoption, there are provisions for members to request additional time for consideration or to take the position that it is not necessary for a decision to be taken in

the period between meetings. CCAMLR's provisions for conducting mail votes reflect a number of similarities with the MHLC situation and concerns that have been expressed during the Preparatory Conference. These provisions have never been used for mail votes on substantive matters.

11. The NPAFC's mail voting procedures are very simple: "Between meetings of the Commission, votes may be taken by mail or other means of communication. Such votes shall be transmitted to the Commission by the Point of Contact or the head of delegation of each Party." NPAFC has never used these procedures.

12. The PSC mail voting procedures provide that: "Between meetings of the Commission, and in cases of special necessity determined by the Chair in consultation with the Vice-Chair, a decision may be taken by mail, other means of textual communication or telephone conference. The Executive Secretary shall promptly notify the Commissioners and Alternate Commissioners of the results of the decisions." The PSC has used this authority to take decisions by telephone in the period between meetings.

Conclusion

13. Most international tuna conservation and management organizations and a large number of other regional fisheries management organizations possess the authority to take decisions intersessionally by mail voting procedures. Generally, this is set out in rules of procedure. The use of these authorities is predicated on the existence of an emergency or special necessity for taking action and the desire or necessity to avoid calling a special session of the organization.

14. Based on the mail voting procedures of existing regional fisheries management organizations, and their experience in using them, it would be possible to construct a mail voting procedure for MHLC purposes that was transparent, provided a cost-effective alternative format for taking pressing decisions, yet also provided adequate protections for the rights and obligations of Commission members. Such a procedure should give due consideration to:

- roles and responsibilities of members, the Chairman, and the Executive Secretary;
- determination of a quorum;
- determination of appropriate circumstances for conducting a mail vote and who makes this determination, including a threshold for the determination, e.g., urgency or special necessity, and incentives for all decisions to be taken at meetings, if possible; and
- an explicit timeline(s) extending from the emergence of a proposal to implementation of the decision, if appropriate, including all intervening steps to be followed unless decided otherwise. It likely would be appropriate to develop two timelines tailored to the two decision rules provided for in Article 20 of the Convention, such as CCAMLR has done to meet its needs.

Appendix II

Draft rule on mail voting procedures

Rule 29 bis

When necessary, a matter may be decided during the period between meetings by mail or other means of communication (mail vote).

1. The Chairman, or a member by contacting the Chairman, may move adoption of a proposal by mail vote. The Chairman, in consultation with the Vice-Chairman, shall concur on the necessity of considering the proposal intersessionally and confirm which decision rule is applicable.

2. In any case in which the Chairman determines that it is not necessary to consider a motion proposed by a member intersessionally, the Chairman shall promptly so inform that member of such determination and the reasons therefor, at which time the proposer may request a mail vote on the Chairman's determination, to be subject to the majority decision rule for questions of procedure set forth in the Convention.

3. In cases in which the Chairman has concurred on the necessity of considering a proposal moved by a member intersessionally, the Executive Director shall transmit the proposal and both determinations made by the Chairman under rule 29 bis (1) to members via the official contacts provided for in rule 7, requesting that responses be returned within 30 days.

4. Members shall promptly acknowledge receipt of any request for a mail vote. If no acknowledgment is received within 10 days of the date of transmittal, the Executive Director shall retransmit the request and shall use all additional means available to ensure that the request has been received.

5. Members shall respond within 30 days of the date of transmittal of a proposal, indicating whether they cast an affirmative vote, cast a negative vote, or abstain from voting.

6. If no reply from a member is received within 30 days of transmittal, that member shall be recorded as having abstained.

7. The result of a decision taken by mail vote shall be ascertained by the Executive Director at the end of the voting period and promptly announced to all members. If any explanations of votes are received, these shall also be transmitted to all members. Subject to paragraphs 6 and 7 of article 20 of the Convention, if the proposal is adopted, it shall become binding 60 days after its adoption.

8. No proposal transmitted by the Executive Director for a mail vote shall be subject to amendment during the voting period.

9. A proposal that has been rejected shall not be reconsidered by way of a mail vote until after the following meeting of the Commission, but may be reconsidered at that meeting.

WCPFC Preparatory Conference
Fifth session
Rarotonga, Cook Islands
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6 August 2003

REVISED DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

1. Draft rules of procedure for the Commission, based on standard rules of procedure for international organizations worldwide and taking into account the considerations identified in document WCPFC/PrepCon/BP.3, were prepared by the interim secretariat for the first session of the Preparatory Conference. During the first, second and third sessions of the Conference, the draft rules were considered in informal plenary sessions. At the end of each session, the interim secretariat was requested to prepare a revised draft of the rules taking into account the discussions that had taken place in the informal sessions.

2. During the fourth session, the Conference met in informal session on 7 May 2003 to review the further revised draft rules of procedure for the Commission which had been prepared by the interim secretariat on the basis of discussions during the third session and contained in document WCPFC/PrepCon/WP.1/Rev.3*. In considering the draft, the Conference focused its attention on those rules where specific problems had been identified, namely rules 1, 14, 15, 23, 24, 30, 31, 34 and 35. While it was possible to resolve the outstanding issues in relation to a number of these provisions, it was noted that considerable differences remained on other provisions. In particular, with respect to the proposal by Japan relating to the Northern Committee (rule 31), it was agreed to defer further discussion on this issue until the next session of the Conference in order to achieve a consensus consistent with the Convention.

3. The Conference agreed to return to the draft rules of procedure at its next session with a view to consideration of the remaining issues. In further revising the draft, the secretariat was requested to include in its explanatory memorandum a note of the issues raised in relation to these outstanding issues.

4. In light of the discussions during the fourth session, a number of specific suggestions and proposals have been incorporated into the further revised draft rules, including minor revisions to rule 1, paragraph 1, rule 15, and rule 35, paragraph 5. During the discussion, no additional comments were made with respect to rules 14 and 30.

5. With respect to rule 23, a proposal had been made by the delegations of Japan, China and Chinese Taipei at the third session to add a footnote to rule 23 stating as follows:

" 'Allocation' includes allocation in terms of the members of the Commission, areas, fisheries and fish sizes."

The Conference agreed to remove the proposed footnote from the draft rules pending further discussion of the proposal.

6. With respect to rule 34, relating to the participation of territories, the Conference took note of the proposal by the delegations of France, New Zealand and the United States for rules of procedure on the nature and extent of participation by territories. Although several delegations expressed their support for the proposal, some delegations asked for more time to examine the proposal in detail and it was agreed to return to rule 34 at the fifth session.

7. With respect to a proposal introduced at the second session relating to the introduction of procedures for voting by mail, the Conference took note of a possible draft for discussion that had been developed by a number of interested delegations. The draft, and an explanatory note, appear in Appendices I and II. While participants felt that there was merit in considering the use of mail voting for matters of procedure, several delegations felt that the use of the mail vote should be limited to cases of extreme urgency. Other delegations considered that mail voting should be possible on both matters of procedure and of substance. In light of the concerns expressed, the Conference agreed that this issue needed further consideration and should be revisited at the next session.

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DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

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I. SESSIONS

REGULAR AND SPECIAL SESSIONS

Holding of regular and special sessions

Rule 1

1. The Commission shall hold a regular annual session.[1] Before the end of each regular annual session, the Commission shall, if possible, decide on the date of commencement and the approximate duration of the next regular annual session. All meetings of the Commission and its subsidiary bodies shall be held within no more than two sessions per year, unless the Commission decides otherwise.

2. The Executive Director shall notify the members of the Commission,[2] each territory referred to in article 43 of the Convention, and observers referred to in rule 35, of the date and place and provisional agenda of the session as early as possible but at least ninety days in advance of the opening of a regular annual session.

3. In exceptional circumstances, the Commission may hold special sessions in accordance with this paragraph. Any member of the Commission may request the Executive Director to convene a special session of the Commission. The Executive Director shall immediately inform the other members of the Commission of the request and inquire whether they concur with it. If within thirty days of the date of communication by the Executive Director a

[1] In these rules, unless otherwise stated, 'regular annual session' means the annual meeting of the Commission specified in article 9, paragraph 3 of the Convention.

[2] In accordance with article 9, paragraph 2, of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereafter referred to as "the Convention"), a fishing entity referred to in the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, which has agreed to be bound by the regime established by the Convention in accordance with the provisions of Annex I to the Convention, may participate in the work, including decision-making, of the Commission in accordance with the provisions of article 9 and Annex I and subject to the provisions of article 34, paragraph 4. According to paragraph 2 of Annex I, such fishing entity shall participate in the work of the Commission, including decision-making, and shall comply with the obligations under the Convention. References thereto by the Commission or members of the Commission include, for the purposes of the Convention, such fishing entity as well as Contracting Parties.

majority of the members of the Commission concur in the request, a special session of the Commission shall be convened by the Executive Director and it shall meet no earlier than thirty days and no later than ninety days after the receipt of such concurrence. The Executive Director shall notify the members of the Commission, each territory referred to in article 43 of the Convention, and observers referred to in rule 35, of the date and place and provisional agenda for a special session as early as possible but at least twenty-five days in advance of the special session.

4. The Commission shall meet at the headquarters of the Commission unless it decides otherwise.

II. AGENDA

REGULAR SESSIONS

Drawing up of the provisional agenda

Rule 2

1. The provisional agenda for a regular session shall be drawn up by the Executive Director, in consultation with the Chairman.

2. The provisional agenda of a regular session shall include:

(a) The annual report of the Executive Director on the work of the Commission;

(b) Items the inclusion of which has been requested by the Commission at a previous session;

(c) Items proposed by any member of the Commission;

(d) Items pertaining to the budget for the next financial year, the report on the accounts for the last financial year and the auditors' report;

(e) Recommendations of the Scientific Committee and any recommendations of the scientific experts pursuant to article 13 of the Convention;

(f) Recommendations of the Technical and Compliance Committee;

(g) Recommendations of the committee established pursuant to article 11, paragraph 7, of the Convention;

(h) Consideration of the special requirements of developing States pursuant to Part VIII of the Convention; and

(i) Items which the Executive Director deems it necessary to put before the Commission.

Supplementary items

Rule 3

Any member of the Commission, the Chairman, or the Executive Director may, at least thirty days before the date fixed for the opening of a regular session request the inclusion of supplementary items in the agenda. A request for the inclusion of a supplementary item on the provisional agenda shall be accompanied by a written explanation of the proposed supplementary item. Such items shall be placed on a supplementary list, which shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 35 at least twenty days before the opening of the session.

SPECIAL SESSIONS

Drawing up of the provisional agenda

Rule 4

The provisional agenda for a special session shall include only of those items proposed for consideration in the request for holding the session.

REGULAR AND SPECIAL SESSIONS

Adoption of the agenda

Rule 5

At the beginning of each session, the Commission shall adopt its agenda for the session on the basis of the provisional agenda. The Commission may, however, in urgent circumstances, place additional items of an important or urgent character on the agenda at any time during a session.

III. REPRESENTATION

Representation

Rule 6

1. Each member of the Commission, and each territory referred to in article 43 of the Convention, shall be represented by designated representatives and such alternate representatives and advisers as may be required by the delegation.

2. Observers referred to in rule 35 shall be represented by designated representatives and by such alternate representatives and advisers as may be required.

3. The names of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Director if possible not later than twenty-four hours after the opening of the session in such standard form of designation as the Executive Director shall establish.

Official contact

Rule 7

Each member of the Commission, and each territory referred to in article 43 of the Convention, shall, as soon as possible after the adoption of these rules, notify the Executive Director of one or more Official Contacts who shall, for the purposes of official communications

between the Commission and the member or territory concerned, including all notifications and communications made pursuant to these rules, be the official points of contact.

IV. OFFICERS

Elections

Rule 8

At its first regular session, and each two years thereafter, the Commission shall elect a Chairman and a Vice-Chairman from among the Contracting Parties to the Convention, who shall be of different nationalities. Except at the first regular session of the Commission, the Chairman and Vice-Chairman shall assume office at the end of the session at which they are elected. Subject to rule 10, they shall hold office for a period of two years and shall be eligible for re-election.

Functions of the Chairman

Rule 9

1. In addition to exercising the powers conferred upon him or her elsewhere in these rules or by the Convention, the Chairman shall declare the opening and closing of each plenary meeting of the Commission, direct the discussions in plenary meeting, ensure observance of these rules, accord the right to speak, announce the list of speakers and, with the consent of the Commission, declare the list of speakers closed, put questions and announce decisions. He or she shall rule on points of order and, subject to these rules, shall have complete control of the proceedings at any meeting and over the maintenance of order thereat. The Chairman may, in the course of discussion of an item, propose to the Commission the limitation of the time to be allowed to speakers, the limitation of the number of times each representative may speak, the closure of the list of speakers or the closure of the debate. He or she may also propose the suspension or the adjournment of the meeting or the adjournment of the debate on the item under discussion.

2. The Chairman, in the exercise of his or her functions, remains under the authority of the Commission.

3. The Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman.

Replacement of the Chairman or Vice-Chairman

Rule 10

If the Chairman or Vice-Chairman is unable to carry out his or her functions or ceases to be a representative of a Contracting Party, or if a Contracting Party of which he or she is a representative ceases to be a member of the Commission, he or she shall cease to hold office and a new Chairman or Vice-Chairman shall be elected for the unexpired term.

V. SECRETARIAT

Duties of the Executive Director

Rule 11

1. The Executive Director, as the chief administrative officer of the Commission, shall act in that capacity in all meetings of the Commission and of its subsidiary bodies. The Executive Director may designate an officer of the Secretariat to act as his or her representative. The Executive Director shall discharge such other responsibilities as are assigned to him or her under the Convention or by the Commission in the conduct of its business.

2. The Executive Director shall provide and direct, with due regard to principles of economy and efficiency, the staff required by the Commission and its subsidiary bodies.

3. The Executive Director shall keep the members of the Commission informed of any issues or matters which may be of interest to the Commission.

Duties of the Secretariat

Rule 12

The Secretariat shall carry out the duties and perform the functions set out in article 15 of the Convention. In particular, the Secretariat shall receive, reproduce and distribute documents, reports and decisions of the Commission and its subsidiary bodies, prepare and circulate summary reports of the meetings of the Commission in accordance with rule 32; have the custody and proper preservation of the documents in the archives of the Commission; distribute all documents of the Commission to the members of the Commission, the territories referred to in article 43 of the Convention, and observers referred to in rule 35; and, generally, perform all other work which the Commission may require.

Report of the Executive Director on the work of the Commission

Rule 13

The Executive Director shall make an annual report, and such supplementary reports as are necessary, to the Commission at its regular session on the work of the Commission. The Executive Director shall communicate the annual report to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 35 at least forty-five days before the opening of the regular session.

VI. CONDUCT OF PLENARY MEETINGS

Quorum

Rule 14

The Chairman may declare a meeting of the Commission open and permit the debate to proceed when at least three-fourths of the members of the Commission are present.

Open and closed meetings

Rule 15

1. The meetings of the Commission shall be open unless the Commission decides that exceptional circumstances require that meetings be held in closed session.

2. All decisions of the Commission taken at a closed session shall be announced at an early open meeting of the Commission. At the end of a closed meeting of a subsidiary body, the Chairman may issue a communiqué through the Executive Director.

Speeches

Rule 16

No representative may address the Commission without having previously obtained the permission of the Chairman. The Chairman shall call upon speakers in the order in which they signify their desire to speak, except that the Chairman of a subsidiary body may be accorded precedence for the purpose of explaining the conclusions arrived at by that body. The Chairman may call a speaker to order if his or her remarks are not relevant to the subject under discussion.

Statements by the Secretariat

Rule 17

The Executive Director, or a member of the Secretariat designated by him as his representative, may, at any time with the permission of the Chairman, make either oral or written statements to the Commission concerning any question under consideration by it.

Points of order

Rule 18

During the discussion of any matter, a member of the Commission may rise to a point of order, and the point of order shall be immediately decided by the Chairman in accordance with these rules of procedure. A member of the Commission may appeal against the ruling of the Chairman. In such a case, the appeal shall be immediately put to the vote, and the Chairman's ruling shall stand unless overruled by a majority of the members of the Commission present and voting. A representative rising to a point of order may not speak on the substance of the matter under discussion.

Procedural motions

Rule 19

1. Subject to rule 18, a member of the Commission may at any time make any of the following procedural motions. Such motions shall have precedence in the following order over all other proposals or motions before the meeting:

(a) To suspend the meeting;

(b) To adjourn the meeting;

(c) To adjourn the debate on the item under discussion;

(d) To close the debate on the item under discussion.

2. Any motion calling for a decision on the competence of the Commission to adopt a proposal submitted to it shall be put to the vote before a vote is taken on the proposal in question.

Proposals and amendments

Rule 20

Proposals and amendments shall normally be circulated in writing to the Executive Director, who shall circulate copies to the delegations. As a general rule, no proposal shall be discussed or put to the vote at any meeting of the Commission unless copies of it have been circulated to all delegations not later than the day preceding the meeting. The Chairman may, however, permit the discussion and consideration of amendments, or of motions as to procedure, even though such amendments and motions have not been circulated or have only been circulated the same day.

VII. DECISION-MAKING

Voting rights

Rule 21

Each member of the Commission shall have one vote, unless otherwise provided in the Convention.

Decision-making

Rule 22

1. As a general rule, decision-making in the Commission shall be by consensus. For the purposes of these rules, “consensus” means the absence of any formal objection made at the time the decision was taken.

2. If all efforts to reach a decision by consensus have been exhausted, decisions by voting in the Commission on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority of those present and voting provided that such majority includes a three-fourths majority of the members of the South Pacific Forum Fisheries Agency present and voting and a three-fourths majority of non-members of the South Pacific Forum Fisheries Agency present and voting and provided further that in no circumstances shall a proposal be defeated by two or fewer votes in either chamber. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Commission by consensus or by the majority required for decisions on questions of substance.

3. If it appears to the Chairman that all efforts to reach a decision by consensus have been exhausted, the Chairman shall fix a time during that session of the Commission for taking the decision by a vote. At the request of any member, the Commission may, by a majority of those present and voting, defer the taking of a decision until such time during the same session as the Commission may decide. At that time, the Commission shall take a vote on the deferred question. This rule may be applied only once to any question.

4. Elections of individuals shall be conducted in accordance with article 20 of the Convention. In the event of a vote, notwithstanding the provisions of rule 24, the election shall be conducted by secret ballot. If no candidate obtains in the first ballot the necessary majorities of the votes cast, a second ballot restricted to the two candidates obtaining the largest number of votes shall be taken. If in the second ballot the votes are equally divided, the balloting shall be continued until one candidate secures the necessary majorities of the votes cast.

5. For the purposes of these rules, the phrase “those present and voting” means members of the Commission present and casting an affirmative or negative vote. Members of the Commission who abstain from voting shall be considered as not voting.

Decisions requiring a consensus

Rule 23

Decisions on questions of substance arising under the following provisions of the Convention shall be taken by consensus: article 9, paragraph 8 (adoption, and amendment, of rules of procedure), article 10, paragraph 4 (decisions relating to the allocation of total allowable catch or the total level of fishing effort), article 17, paragraph 2 (adoption of financial regulations), article 18, paragraphs 1 and 2 (adoption of the budget and a scheme for assessment of contributions to the budget), and article 40 (amendments to the Convention).

Method of voting

Rule 24

The Commission shall vote by show of hands or by standing, but any member of the Commission may request a roll-call. The roll-call shall be taken in the alphabetical order of the names of the members of the Commission participating in that session, beginning with the member whose name is drawn by lot by the Chairman. The name of each member of the Commission shall be called in any roll-call, and one of its representatives shall reply “yes”, “no” or “abstention”. The result of the voting shall be inserted in the record in the alphabetical order of the names of the members.[3]

Conduct during voting

Rule 25

After the Chairman has announced the commencement of voting, no member of the Commission may interrupt the voting, except that members of the Commission may interrupt on a point of order in connection with the actual conduct of voting.

Explanation of vote

Rule 26

Members of the Commission may make brief statements consisting solely of explanations of their votes before the voting has commenced or after the voting has been completed. The Chairman may limit the time to be allowed for such statements. A member of the Commission sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended.

Division of proposals and amendments

Rule 27

[3] A procedure for voting by mail or forms of electronic communication was proposed by some delegations, but was not acceptable to others. Further discussion of this matter is needed. The appendices to the present paper discusses some possible options for mail voting procedures.

A member of the Commission may move that parts of a proposal or of an amendment should be voted on separately. If objection is made to the request for a division, the motion for division shall be voted upon. Permission to speak on the motion for division shall be given only to two speakers in favour and two speakers against. If the motion for division is carried, those parts of the proposal or of the amendment which are approved shall then be put to the vote as a whole. If all operative parts of the proposal or of the amendment have been rejected, the proposal or the amendment shall be considered to have been rejected as a whole.

Order of voting on amendments

Rule 28

When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the Commission shall first vote on the amendment furthest removed in substance from the original proposal and then on to the amendment next furthest removed therefrom and so on until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter amendment shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted upon. A motion is considered an amendment to a proposal if it adds to, deletes from or revises part of the proposal.

Order of voting on proposals

Rule 29

If two or more proposals relate to the same question, the Commission shall, unless it decides otherwise, vote on the proposals in the order in which they have been submitted. The Commission may, after each vote on a proposal, decide whether to vote on the next proposal.

VIII. RULES OF PROCEDURE OF SUBSIDIARY BODIES

Rules of procedure

Rule 30

1. Subject to the provisions of the Convention, each subsidiary body of the Commission may formulate and submit to the Commission for approval such rules as may be necessary for the efficient conduct of its functions.

2. Pending the approval of such rules, and except as otherwise provided in the Convention, these rules of procedure apply, mutatis mutandis, to the proceedings of subsidiary bodies, including the Scientific Committee and the Technical and Compliance Committee.

The Northern Committee

Rule 31

Notwithstanding all other provisions of these Rules, the committee established pursuant to article 11, paragraph 7, of the Convention, shall function in accordance with the procedures set out in Annex I.

IX. REPORTS OF MEETINGS

Reports of meetings

Rule 32

1. Summary reports of the sessions of the Commission shall be maintained in such form as the Commission shall decide. As a general rule, such reports shall be circulated as soon as possible, to all representatives, who shall inform the Secretariat within thirty working days after the circulation of the summary report of any changes they wish to have made.

2. The Executive Director shall communicate the text of all decisions adopted by the Commission pursuant to article 20 of the Convention to all members of the Commission and to each territory referred to in article 43 of the Convention, and to observers referred to in rule 35, within seven working days following the adoption of such decision.

X. SUSPENSION OF RIGHTS

Suspension of the exercise of voting rights

Rule 33

A contributor to the budget of the Commission which is in arrears in the payment of its financial contributions to the Commission shall not participate in the taking of decisions by the Commission if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The Commission may, nevertheless, permit such a contributor to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the contributor.

XI. PARTICIPATION BY TERRITORIES

Participation by territories

Rule 34

Notwithstanding all other provisions of these Rules, pursuant to article 43 of the Convention, the nature and extent of the participation of the territories listed in article 43, paragraph 1, of the Convention, shall be governed by the rules set out in Annex II.

XI. OBSERVERS

Observers

Rule 35

1. The following may participate as observers in the Commission:

(a) States, entities and fishing entities that participated in the Multilateral High Level Conference on the Conservation and Management of the Highly Migratory Fish Stocks, which are not members of the Commission;

(b) Any entity referred to in article 305, paragraph 1, subparagraphs (c), (d) and (e) of the 1982 United Nations Convention on the Law of the Sea which is situated in the Convention Area, which is not a member of the Commission;

(c) Other States and fishing entities with an interest in the work of the Commission, invited by the Commission, which are not members of the Commission;

(d) The Food and Agriculture Organization of the United Nations and other relevant intergovernmental organizations and South Pacific regional organizations invited by the Commission;

(e) Non-governmental organizations concerned with matters relevant to the implementation of the Convention admitted by the Commission pursuant to paragraph 4 of this rule which have demonstrated their interest in matters under consideration by the Commission.

2. Observers referred to in paragraph 1 (a), (b) and (c) of this rule may participate subject to the provisions of these rules in the deliberations of the Commission and its subsidiary bodies but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

3. Observers referred to in paragraph 1 (d) of this rule may participate in the deliberations of the Commission and its subsidiary bodies upon the invitation of the Chairman on questions within the scope of their competence, but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

4. A non-governmental organization desiring to participate as an observer shall notify the Executive Director in writing of its desire to participate at least fifty days in advance of the session. The Executive Director shall notify the members of the Commission of such request at least 45 days prior to the opening of the session at which the request is to be considered. Non-governmental organizations that have made such notification to the Executive Director shall be invited to participate in the session as observers unless a majority of the members of the Commission objects to the request in writing at least twenty days before the opening of the session. Such observer status shall remain in effect for future sessions unless the Commission decides otherwise.

5. Observers referred to in paragraph 1 (e) of this rule may sit at meetings of the Commission and its subsidiary bodies and upon the invitation of the Chairman and subject to the approval of the Commission or the relevant subsidiary body may make oral statements on matters within the scope of their activities. Written statements submitted by observers referred to in paragraph 1 (e) of this rule within the scope of their activities which are relevant to the work of the Commission may, subject to the approval of the Chairman, be distributed at meetings of the Commission and its subsidiary bodies.

6. The Executive Director may require observers referred to in paragraph 1 (e) of this rule to pay reasonable fees to cover the administrative costs attributable to their attendance at meetings of the Commission.

XII. AMENDMENTS

Method of amendment

Rule 36

These rules of procedure may be amended by a decision of the Commission, taken by consensus.

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Annex I

Rules of procedure relating to the Northern Committee as proposed by the delegation of Japan

1. The committee established under article 11, paragraph 7, of the Convention shall be called the Northern Committee. It shall consist of the members situated in the Convention area north of 20° north parallel and the members fishing in that area. Any member of the Commission not represented on the Committee may send a representative to participate in the deliberations of the Committee as an observer.

2. The Northern Committee shall, by consensus, make recommendations on the formulation of conservation and management measures in respect of stocks which occur mostly in the area north of 20° north parallel. Such recommendations shall be consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention. The Commission shall not take a decision with regard to any such measure without a recommendation concerning such measure from the Northern Committee.

3. The Northern Committee shall, by consensus, make recommendations on the implementation for the area north of 20° north parallel of such conservation and management measures as may be adopted by the Commission. Such recommendations shall be consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention.

4. A recommendation of the Northern Committee shall be adopted by the Commission unless the Commission, by the rules of procedure for decision-making on matters of substance, decides to return the recommendation back to the Northern Committee on the grounds that it is not consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention.

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Annex II

Rules of procedure on the nature and extent of participation of territories

1. Territories listed in article 43 of the Convention would be "Participating Territories" once they have the relevant authorization. Such authorization shall be in the form of a declaration, filed with the depositary, by the Contracting Party having responsibility for the international affairs of such Participating Territory.

2. The Declaration would describe the distribution of the Territory's competencies and the extent of its responsibilities. The Declaration should be updated appropriately as the Participating Territory's capacities evolve.

3. Participating Territories have the right to be present and to speak at the meetings of the Commission and its subsidiary bodies and to receive all communications in respect of those meetings. Participating Territories would not have rights which are inconsistent with their territorial status (such as being elected Chair or being counted towards a quorum).

4. In relation to matters over which a Participating Territory has competence, such Territory may make proposals and offer amendments.

5. In relation to matters over which a Participating Territory does not have competence, it may, with the specific authorization of the Contracting Party having responsibility for that Territory's international affairs, make proposals and offer amendments.

6. Additional rights and restrictions on rights shall be determined by the Contracting Parties in rules of procedure, as necessary, consistent with Article 43.

7. In accordance with article 20, of the Convention, the Commission will make all efforts to reach decisions by consensus. Consistent with their full participation in the work of the Commission, all Participating Territories would participate in the Commission's deliberations to reach consensus. Participating Territories' views would be properly considered and taken into account in reaching any decision. Seeking a consensus will be especially important in decisions of economic significance to Participating Territories such as:

(a) decisions on allocation, where a Participating Territory is responsible for the conservation and management of resources in its waters;

(b) decisions on the scale of assessments, where a Participating Territory makes independent and voluntary contributions to the Commission's budget.

8. Where a consensus could be reached but for the views of a Participating Territory that has full competence over the resources in its waters (in decisions on allocation) or a Participating Territory that contributes to the Commission's budget (in decisions on budget and the scale of assessments), such a Participating Territory may request an additional period of time of up to twelve hours on the affected agenda item for consultation. Notwithstanding this, a Participating Territory could not block consensus on a proposal.

9. A Participating Territory would need to meet a predetermined standard in order to acquire or exercise the right to vote within the Commission. The standards and the process and criteria for assessing whether the standards have been met would need further discussion and elaboration by the Contracting Parties.

Appendix I

The Use of Mail Voting Procedures by Regional Fisheries Management Organizations

Introduction

1. Many international organizations with living marine resource conservation and management responsibilities have the authority to make decisions intersessionally by use of the mail vote, or other means of communication. This authority has historically been used to deal with urgent conservation and management needs and to avoid the expense to the organization and its members of holding an intersessional meeting.

2. The MHLC Convention as well as the Preparatory Conference have addressed the principles of efficiency and cost-effectiveness and the desire for the Commission to operate as economically as possible. It is consistent with these principles to examine the possibility of providing for a decision-making mechanism that could operate without the need to convene a meeting of the Commission. At the same time, the use of mail voting procedures virtually eliminates the discussion and other valuable interaction that occurs at meetings. That being the case, it is appropriate that their use be delimited.

3. An examination of mail voting procedures should include a review of the experiences of other organizations, particularly with a mind to desirable safeguards against the abuse of such procedures. Although resort to such procedures should not affect in any way the decision-making provisions in the Convention, a procedure should clearly specify roles and responsibilities, the determination of a quorum, need for adequate prior notice and other matters of timing, etc.

Other Organizations

4. Of the existing tuna commissions, the Inter-American Tropical Tuna Commission (IATTC), the Commission for the Conservation of Atlantic Tuna (ICCAT), and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) have mail voting procedures, while the Indian Ocean Tuna Commission (IOTC) does not. Other regional fisheries management organizations that have mail voting procedures include: the Northwest Atlantic Fisheries Organization (NAFO); the North Atlantic Salmon Conservation Organization (NASCO); the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR); and the North Pacific Anadromous Fish Commission (NPAFC). Although most bilateral arrangements find it unnecessary to have mail voting procedures, the Pacific Salmon Commission (PSC) does have them. Another observation is that the more recently written mail voting provisions in rules of procedure tend to be more detailed.

5. In the IATTC, the mail voting provision can be invoked either at will or in an emergency. It reads “between meetings of the Commission or in case of emergency, a vote of the High Contracting Parties may be obtained by mail, or other means of communication.” The IATTC uses the consensus decision rule and has used a mail vote on occasions when a voting member did not attend a meeting but the Commission needed its approval for actions to go forward. The IATTC also relies on a large number of permanent and ad hoc subgroups, which always consist of representatives of all members. There have been many occasions when the subgroups have reached an agreement, but that agreement cannot become binding until the Commission formally approves it. When such agreements cannot or should not wait for implementation until the annual meeting occurs, they have been put to a mail vote. The main value of the mail vote is to avoid

calling for a special meeting, which often is difficult to arrange in a timely manner and is always logistically difficult and expensive.

6. The ICCAT provision is more narrow: “Between meetings of the Commission, in case of special necessity, votes may be taken by mail or other means of communication. Such votes shall be transmitted to the Chairman of the Commission by the correspondent of each member country.” The most recent use of this procedure occurred when the 2001 annual meeting was unable to complete its business and a variety of decisions, including some catch limits, in various stages of development, were not brought forward for final adoption. As an alternative to staging another meeting, and desiring at least in some cases to avoid an absence of catch limits, ICCAT employed its mail voting procedure. This experience suggests that it should always be possible to utilize a mail voting procedure if an annual or special meeting of the Commission so decides.

7. The CCSBT provision reads, “Where necessary when the Commission is not in session, decisions of the Commission shall be taken by a unanimous vote of the Members effected by post or other means of textual communication including facsimile. In circumstances where the Chair is satisfied that a Member has received a proposal, and that Member has not responded within 21 days to the proposal, the Member shall be taken to have responded to that proposal in the affirmative.” Apparently, CCSBT has not used this provision.

8. NAFO has used its mail voting procedures very recently. They are more elaborate than most others examined in this paper, specifying to whom the Executive Secretary directs the request for vote, the duration of the voting period, responsibilities of Contracting Parties under the procedures, and the determination of a quorum under the procedures. The standard for invoking these procedures is “in case of emergency between meetings,” and the vote may be taken “by mail or other means of communication.” NAFO also has a long-standing practice of quota transfers between Contracting Parties, which is always carried out through mail voting. The 2001 annual meeting of NAFO was scheduled to take place less than 2 weeks after the September terrorist attacks in the United States and was therefore cancelled. In light of the fact that the scientific advice relevant to conservation measures expected to have been decided for 2002 was unchanged from the previous year, NAFO used its mail voting authority to “roll-over” its applicable conservation measures from 2001 to 2002. It then held a truncated special meeting to conduct its other business.

9. NASCO also invokes the “special necessity” standard as the main condition of mail voting but introduces the discretion of the head elected officer. For its General Council, NASCO’s rule reads: “Between meetings of the Council and in case of special necessity to be determined by the President, votes may be taken by mail or by other means of textual communication. Such votes shall be considered as roll call votes. The Secretary shall immediately notify the members of the Council of the results of such votes.” There is no recent history of NASCO using its mail voting procedures.

10. CCAMLR has relatively elaborate provisions for mail voting. Between meetings, the taking of decisions and votes on any proposal may be carried out “when necessary.” Either a member or the Chairman can request a mail vote, and the proposer recommends which of CCAMLR’s two decision-making rules should apply to the substance of the proposal (consensus on matters of substance and a simple majority of members present and voting on all other matters). The provisions specify roles and responsibilities for the Chairman, Executive Secretary, and members; timelines; and separate tracks depending on the applicable decision rule. If the proposal requires consensus for adoption, there are provisions for members to request additional time for consideration or to take the position that it is not necessary for a decision to be taken in

the period between meetings. CCAMLR's provisions for conducting mail votes reflect a number of similarities with the MHLC situation and concerns that have been expressed during the Preparatory Conference. These provisions have never been used for mail votes on substantive matters.

11. The NPAFC's mail voting procedures are very simple: "Between meetings of the Commission, votes may be taken by mail or other means of communication. Such votes shall be transmitted to the Commission by the Point of Contact or the head of delegation of each Party." NPAFC has never used these procedures.

12. The PSC mail voting procedures provide that: "Between meetings of the Commission, and in cases of special necessity determined by the Chair in consultation with the Vice-Chair, a decision may be taken by mail, other means of textual communication or telephone conference. The Executive Secretary shall promptly notify the Commissioners and Alternate Commissioners of the results of the decisions." The PSC has used this authority to take decisions by telephone in the period between meetings.

Conclusion

13. Most international tuna conservation and management organizations and a large number of other regional fisheries management organizations possess the authority to take decisions intersessionally by mail voting procedures. Generally, this is set out in rules of procedure. The use of these authorities is predicated on the existence of an emergency or special necessity for taking action and the desire or necessity to avoid calling a special session of the organization.

14. Based on the mail voting procedures of existing regional fisheries management organizations, and their experience in using them, it would be possible to construct a mail voting procedure for MHLC purposes that was transparent, provided a cost-effective alternative format for taking pressing decisions, yet also provided adequate protections for the rights and obligations of Commission members. Such a procedure should give due consideration to:

- roles and responsibilities of members, the Chairman, and the Executive Secretary;
- determination of a quorum;
- determination of appropriate circumstances for conducting a mail vote and who makes this determination, including a threshold for the determination, e.g., urgency or special necessity, and incentives for all decisions to be taken at meetings, if possible; and
- an explicit timeline(s) extending from the emergence of a proposal to implementation of the decision, if appropriate, including all intervening steps to be followed unless decided otherwise. It likely would be appropriate to develop two timelines tailored to the two decision rules provided for in Article 20 of the Convention, such as CCAMLR has done to meet its needs.

Appendix II

Draft rule on mail voting procedures

Rule 29 bis

When necessary, a matter may be decided during the period between meetings by mail or other means of communication (mail vote).

1. The Chairman, or a member by contacting the Chairman, may move adoption of a proposal by mail vote. The Chairman, in consultation with the Vice-Chairman, shall concur on the necessity of considering the proposal intersessionally and confirm which decision rule is applicable.

2. In any case in which the Chairman determines that it is not necessary to consider a motion proposed by a member intersessionally, the Chairman shall promptly so inform that member of such determination and the reasons therefor, at which time the proposer may request a mail vote on the Chairman's determination, to be subject to the majority decision rule for questions of procedure set forth in the Convention.

3. In cases in which the Chairman has concurred on the necessity of considering a proposal moved by a member intersessionally, the Executive Director shall transmit the proposal and both determinations made by the Chairman under rule 29 bis (1) to members via the official contacts provided for in rule 7, requesting that responses be returned within 30 days.

4. Members shall promptly acknowledge receipt of any request for a mail vote. If no acknowledgment is received within 10 days of the date of transmittal, the Executive Director shall retransmit the request and shall use all additional means available to ensure that the request has been received.

5. Members shall respond within 30 days of the date of transmittal of a proposal, indicating whether they cast an affirmative vote, cast a negative vote, or abstain from voting.

6. If no reply from a member is received within 30 days of transmittal, that member shall be recorded as having abstained.

7. The result of a decision taken by mail vote shall be ascertained by the Executive Director at the end of the voting period and promptly announced to all members. If any explanations of votes are received, these shall also be transmitted to all members. Subject to paragraphs 6 and 7 of article 20 of the Convention, if the proposal is adopted, it shall become binding 60 days after its adoption.

8. No proposal transmitted by the Executive Director for a mail vote shall be subject to amendment during the voting period.

9. A proposal that has been rejected shall not be reconsidered by way of a mail vote until after the following meeting of the Commission, but may be reconsidered at that meeting.

WCPFC/PrepCon/WP.1/Rev.5
1 August 2004

REVISED DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

1. Draft rules of procedure for the Commission, based on standard rules of procedure for international organizations worldwide and taking into account the considerations identified in document WCPFC/PrepCon/BP.3, were prepared by the interim secretariat for the first session of the Preparatory Conference (WCPFC/PrepCon/WP.1, 25 April 2001). During the first, second and third sessions of the Conference, the draft rules were considered in informal plenary sessions. At the end of each session, the interim secretariat was requested to prepare a revised draft of the rules taking into account the discussions that had taken place in the informal sessions.

2. During the fourth session, the Conference met in informal session on 7 May 2003 to review the further revised draft rules of procedure for the Commission which had been prepared by the interim secretariat on the basis of discussions during the third session and contained in document WCPFC/PrepCon/WP.1/Rev.3*. In considering the draft, the Conference focused its attention on those rules where specific problems had been identified, namely rules 1, 14, 15, 23, 24, 30, 31, 34 and 35. While it was possible to resolve the outstanding issues in relation to a number of these provisions (including revisions to rule 1, paragraph 1, rule 15, and rule 35, paragraph 5) it was noted that considerable differences remained on other provisions. In particular, with respect to the proposal by Japan relating to the Northern Committee (rule 31), it was agreed to defer further discussion on this issue until the fifth session of the Conference in order to achieve a consensus consistent with the Convention. The Conference also agreed to defer discussion of a proposal by the delegations of France, New Zealand and the United States for rules of procedure on the nature and extent of participation by territories (rule 34) as well as proposals developed by a number of interested delegations on procedures for intersessional voting by mail. In the meantime, the Secretariat prepared a further revised draft of the rules of procedure under symbol WCPFC/PrepCon/WP.1/Rev.4.

3. During the fifth session (Rarotonga, Cook Islands, 29 September – 1 October 2003), the Conference met in informal session to consider document WCPFC/PrepCon/WP.1/Rev.4. In considering the draft, the Conference focused its attention on outstanding complex issues, including the rules of procedure relating to the Northern Committee, the proposals made in relation to the participation of territories and proposals relating to intersessional voting procedures. Following intensive discussions, including informal consultations between delegations, it was possible to resolve the outstanding issues in relation to these provisions. It was noted that that the outcome of these discussions, as well as a number of other minor technical revisions, would be reflected in a further revised version of the draft rules of procedure which would be taken up at the final session of the Conference.

4. No formal discussion of the rules of procedure took place at the sixth session of the Preparatory Conference (Bali, Indonesia, 19 – 23 April 2004), although a further revised text of the draft rules, taking into account the discussions at PrepCon V, was circulated to all delegations for comment under symbol WCPFC/PrepCon/CRP.2 (20 April 2004).

5. The present document is a formal re-issue of WCPFC/PrepCon/CRP.2 (with minor editorial revisions suggested by delegations) and represents the outcome of all discussions in the informal plenary on this issue to date. Subject to any further consideration during the final session of the Preparatory Conference, it is proposed that the Preparatory Conference **recommend** the further revised draft rules of procedure contained in the annex to the present document to the Commission for adoption at its first session.

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DRAFT RULES OF PROCEDURE OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC

Prepared by the Secretariat

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I. SESSIONS

REGULAR AND SPECIAL SESSIONS

Holding of regular and special sessions

Rule 1

1. The Commission shall hold a regular annual session.[1] Before the end of each regular annual session, the Commission shall, if possible, decide on the date of commencement and the approximate duration of the next regular annual session. All meetings of the Commission and its subsidiary bodies shall be held within no more than two sessions per year, unless the Commission decides otherwise.

2. The Executive Director shall notify the members of the Commission,[2] each territory referred to in article 43 of the Convention, and observers referred to in rule 36, of the

[1] In these rules, unless otherwise stated, 'regular annual session' means the annual meeting of the Commission specified in article 9, paragraph 3 of the Convention.
[2] In accordance with article 9, paragraph 2, of the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereafter referred to as "the Convention"), a fishing entity referred to in the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and

date and place and provisional agenda of the session as early as possible but at least ninety days in advance of the opening of a regular annual session.

3. In exceptional circumstances, the Commission may hold special sessions in accordance with this paragraph. Any member of the Commission may request the Executive Director to convene a special session of the Commission. The Executive Director shall immediately inform the other members of the Commission of the request and inquire whether they concur with it. If within thirty days of the date of communication by the Executive Director a majority of the members of the Commission concur in the request, a special session of the Commission shall be convened by the Executive Director and it shall meet no earlier than thirty days and no later than ninety days after the receipt of such concurrence. The Executive Director shall notify the members of the Commission, each territory referred to in article 43 of the Convention, and observers referred to in rule 36, of the date and place and provisional agenda for a special session as early as possible but at least twenty-five days in advance of the special session.

4. The Commission shall meet at the headquarters of the Commission unless it decides otherwise.

II. AGENDA

REGULAR SESSIONS

Drawing up of the provisional agenda

Rule 2

1. The provisional agenda for a regular session shall be drawn up by the Executive Director, in consultation with the Chairman.

2. The provisional agenda of a regular session shall include:

(a) The annual report of the Executive Director on the work of the Commission;

(b) Items the inclusion of which has been requested by the Commission at a previous session;

(c) Items proposed by any member of the Commission;

(d) Items pertaining to the budget for the next financial year, the report on the accounts for the last financial year and the auditors' report;

Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, which has agreed to be bound by the regime established by the Convention in accordance with the provisions of Annex I to the Convention, may participate in the work, including decision-making, of the Commission in accordance with the provisions of article 9 and Annex I and subject to the provisions of article 34, paragraph 4. According to paragraph 2 of Annex I, such fishing entity shall participate in the work of the Commission, including decision-making, and shall comply with the obligations under the Convention. References thereto by the Commission or members of the Commission include, for the purposes of the Convention, such fishing entity as well as Contracting Parties.

(e) Recommendations of the Scientific Committee and any recommendations of the scientific experts pursuant to article 13 of the Convention;

(f) Recommendations of the Technical and Compliance Committee;

(g) Recommendations of the committee established pursuant to article 11, paragraph 7, of the Convention;

(h) Consideration of the special requirements of developing States pursuant to Part VIII of the Convention; and

(i) Items which the Executive Director deems it necessary to put before the Commission.

Supplementary items

Rule 3

Any member of the Commission, the Chairman, or the Executive Director may, at least thirty days before the date fixed for the opening of a regular session request the inclusion of supplementary items in the agenda. A request for the inclusion of a supplementary item on the provisional agenda shall be accompanied by a written explanation of the proposed supplementary item. Such items shall be placed on a supplementary list, which shall be communicated to the members of the Commission, to each territory referred to in article 43 of the Convention, and to observers referred to in rule 36 at least twenty days before the opening of the session.

SPECIAL SESSIONS

Drawing up of the provisional agenda

Rule 4

The provisional agenda for a special session shall include only of those items proposed for consideration in the request for holding the session.

REGULAR AND SPECIAL SESSIONS

Adoption of the agenda

Rule 5

At the beginning of each session, the Commission shall adopt its agenda for the session on the basis of the provisional agenda. The Commission may, however, in urgent circumstances, place additional items of an important or urgent character on the agenda at any time during a session.

III. REPRESENTATION

Representation

Rule 6

1. Each member of the Commission, and each territory referred to in article 43 of the Convention, shall be represented by designated representatives and such alternate representatives and advisers as may be required by the delegation.

2. Observers referred to in rule 36 shall be represented by designated representatives and by such alternate representatives and advisers as may be required.

3. The names of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Director if possible not later than twenty-four hours after the opening of the session in such standard form of designation as the Executive Director shall establish.

Official contact

Rule 7

Each member of the Commission, and each territory referred to in article 43 of the Convention, shall, as soon as possible after the adoption of these rules, notify the Executive Director of one or more Official Contacts who shall, for the purposes of official communications between the Commission and the member or territory concerned, including all notifications and communications made pursuant to these rules, be the official points of contact.

IV. OFFICERS

Elections

Rule 8

At its first regular session, and each two years thereafter, the Commission shall elect a Chairman and a Vice-Chairman from among the Contracting Parties to the Convention, who shall be of different nationalities. Except at the first regular session of the Commission, the Chairman and Vice-Chairman shall assume office at the end of the session at which they are elected. Subject to rule 10, they shall hold office for a period of two years and shall be eligible for re-election.

Functions of the Chairman

Rule 9

1. In addition to exercising the powers conferred upon him or her elsewhere in these rules or by the Convention, the Chairman shall declare the opening and closing of each plenary meeting of the Commission, direct the discussions in plenary meeting, ensure observance of these rules, accord the right to speak, announce the list of speakers and, with the consent of the Commission, declare the list of speakers closed, put questions and announce decisions. He or she shall rule on points of order and, subject to these rules, shall have complete control of the proceedings at any meeting and over the maintenance of order thereat. The Chairman may, in the course of discussion of an item, propose to the Commission the limitation of the time to be allowed to speakers, the limitation of the number of times each representative may speak, the closure of the list of speakers or the closure of the debate. He or she may also propose the suspension or the adjournment of the meeting or the adjournment of the debate on the item under discussion.

2. The Chairman, in the exercise of his or her functions, remains under the authority of the Commission.

3. The Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman.

Replacement of the Chairman or Vice-Chairman

Rule 10

If the Chairman or Vice-Chairman is unable to carry out his or her functions or ceases to be a representative of a Contracting Party, or if a Contracting Party of which he or she is a representative ceases to be a member of the Commission, he or she shall cease to hold office and a new Chairman or Vice-Chairman shall be elected for the unexpired term.

V. SECRETARIAT

Duties of the Executive Director

Rule 11

1. The Executive Director, as the chief administrative officer of the Commission, shall act in that capacity in all meetings of the Commission and of its subsidiary bodies. The Executive Director may designate an officer of the Secretariat to act as his or her representative. The Executive Director shall discharge such other responsibilities as are assigned to him or her under the Convention or by the Commission in the conduct of its business.

2. The Executive Director shall provide and direct, with due regard to principles of economy and efficiency, the staff required by the Commission and its subsidiary bodies.

3. The Executive Director shall keep the members of the Commission informed of any issues or matters which may be of interest to the Commission.

Duties of the Secretariat

Rule 12

The Secretariat shall carry out the duties and perform the functions set out in article 15 of the Convention. In particular, the Secretariat shall receive, reproduce and distribute documents, reports and decisions of the Commission and its subsidiary bodies, prepare and circulate summary reports of the meetings of the Commission in accordance with rule 33; have the custody and proper preservation of the documents in the archives of the Commission; distribute all documents of the Commission to the members of the Commission, the territories referred to in article 43 of the Convention, and observers referred to in rule 36; and, generally, perform all other work which the Commission may require.

Report of the Executive Director on the work of the Commission

Rule 13

The Executive Director shall make an annual report, and such supplementary reports as are necessary, to the Commission at its regular session on the work of the Commission. The Executive Director shall communicate the annual report to the members of the Commission, to each territory referred to in article 43 of the Convention and to observers referred to in rule 36 at least forty-five days before the opening of the regular session.

VI. CONDUCT OF PLENARY MEETINGS

Quorum

Rule 14

The Chairman may declare a meeting of the Commission open and permit the debate to proceed when at least three-fourths of the members of the Commission are present.

Open and closed meetings

Rule 15

1. The meetings of the Commission and its subsidiary bodies shall be open unless the Commission or the subsidiary body concerned decides that exceptional circumstances require that meetings be held in closed session.

2. All decisions of the Commission taken at a closed session shall be announced at an early open meeting of the Commission. At the end of a closed meeting of a subsidiary body, the Chairman may issue a communiqué through the Executive Director.

Speeches

Rule 16

No representative may address the Commission without having previously obtained the permission of the Chairman. The Chairman shall call upon speakers in the order in which they signify their desire to speak, except that the Chairman of a subsidiary body may be accorded precedence for the purpose of explaining the conclusions arrived at by that body. The Chairman may call a speaker to order if his or her remarks are not relevant to the subject under discussion.

Statements by the Secretariat

Rule 17

The Executive Director, or a member of the Secretariat designated by him as his representative, may, at any time with the permission of the Chairman, make either oral or written statements to the Commission concerning any question under consideration by it.

Points of order

Rule 18

During the discussion of any matter, a member of the Commission may rise to a point of order, and the point of order shall be immediately decided by the Chairman in accordance with these rules of procedure. A member of the Commission may appeal against the ruling of the Chairman. In such a case, the appeal shall be immediately put to the vote, and the Chairman's ruling shall stand unless overruled by a majority of the members of the Commission present and voting. A representative rising to a point of order may not speak on the substance of the matter under discussion.

Procedural motions

Rule 19

1. Subject to rule 18, a member of the Commission may at any time make any of the following procedural motions. Such motions shall have precedence in the following order over all other proposals or motions before the meeting:

(a) To suspend the meeting;

(b) To adjourn the meeting;

(c) To adjourn the debate on the item under discussion;

(d) To close the debate on the item under discussion.

2. Any motion calling for a decision on the competence of the Commission to adopt a proposal submitted to it shall be put to the vote before a vote is taken on the proposal in question.

Proposals and amendments

Rule 20

Proposals and amendments shall normally be circulated in writing to the Executive Director, who shall circulate copies to the delegations. As a general rule, no proposal shall be discussed or put to the vote at any meeting of the Commission unless copies of it have been circulated to all delegations not later than the day preceding the meeting. The Chairman may, however, permit the discussion and consideration of amendments, or of motions as to procedure, even though such amendments and motions have not been circulated or have only been circulated the same day.

VII. DECISION-MAKING

Voting rights

Rule 21

Each member of the Commission shall have one vote, unless otherwise provided in the Convention.

Decision-making

Rule 22

1. As a general rule, decision-making in the Commission shall be by consensus. For the purposes of these rules, “consensus” means the absence of any formal objection made at the time the decision was taken.

2. If all efforts to reach a decision by consensus have been exhausted, decisions by voting in the Commission on questions of procedure shall be taken by a majority of those present and voting. Decisions on questions of substance shall be taken by a three-fourths majority of those present and voting provided that such majority includes a three-fourths majority of the members of the South Pacific Forum Fisheries Agency present and voting and a three-fourths majority of non-members of the South Pacific Forum Fisheries Agency present and voting and provided further that in no circumstances shall a proposal be defeated by two or fewer votes in either chamber. When the issue arises as to whether a question is one of substance or not, that question

shall be treated as one of substance unless otherwise decided by the Commission by consensus or by the majority required for decisions on questions of substance.

3. If it appears to the Chairman that all efforts to reach a decision by consensus have been exhausted, the Chairman shall fix a time during that session of the Commission for taking the decision by a vote. At the request of any member, the Commission may, by a majority of those present and voting, defer the taking of a decision until such time during the same session as the Commission may decide. At that time, the Commission shall take a vote on the deferred question. This rule may be applied only once to any question.

4. Elections of individuals shall be conducted in accordance with article 20 of the Convention. In the event of a vote, notwithstanding the provisions of rule 24, the election shall be conducted by secret ballot. If no candidate obtains in the first ballot the necessary majorities of the votes cast, a second ballot restricted to the two candidates obtaining the largest number of votes shall be taken. If in the second ballot the votes are equally divided, the balloting shall be continued until one candidate secures the necessary majorities of the votes cast.

5. For the purposes of these rules, and subject to rules 21 and 34, the phrase “those present and voting” means members of the Commission present and casting an affirmative or negative vote. Members of the Commission who abstain from voting shall be considered as not voting.

Decisions requiring a consensus

Rule 23

Decisions on questions of substance arising under the following provisions of the Convention shall be taken by consensus: article 9, paragraph 8 (adoption, and amendment, of rules of procedure), article 10, paragraph 4 (decisions relating to the allocation of total allowable catch or the total level of fishing effort), article 17, paragraph 2 (adoption of financial regulations), article 18, paragraphs 1 and 2 (adoption of the budget and a scheme for assessment of contributions to the budget), and article 40 (amendments to the Convention).

Method of voting

Rule 24

The Commission shall vote by show of hands or by standing, but any member of the Commission may request a roll-call. The roll-call shall be taken in the alphabetical order of the names of the members of the Commission participating in that session, beginning with the member whose name is drawn by lot by the Chairman. The name of each member of the Commission shall be called in any roll-call, and one of its representatives shall reply “yes”, “no” or “abstention”. The result of the voting shall be inserted in the record in the alphabetical order of the names of the members.

Conduct during voting

Rule 25

After the Chairman has announced the commencement of voting, no member of the Commission may interrupt the voting, except that members of the Commission may interrupt on a point of order in connection with the actual conduct of voting.

Explanation of vote

Rule 26

Members of the Commission may make brief statements consisting solely of explanations of their votes before the voting has commenced or after the voting has been completed. The Chairman may limit the time to be allowed for such statements. A member of the Commission sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended.

Division of proposals and amendments

Rule 27

A member of the Commission may move that parts of a proposal or of an amendment should be voted on separately. If objection is made to the request for a division, the motion for division shall be voted upon. Permission to speak on the motion for division shall be given only to two speakers in favour and two speakers against. If the motion for division is carried, those parts of the proposal or of the amendment which are approved shall then be put to the vote as a whole. If all operative parts of the proposal or of the amendment have been rejected, the proposal or the amendment shall be considered to have been rejected as a whole.

Order of voting on amendments

Rule 28

When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the Commission shall first vote on the amendment furthest removed in substance from the original proposal and then on to the amendment next furthest removed therefrom and so on until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter amendment shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted upon. A motion is considered an amendment to a proposal if it adds to, deletes from or revises part of the proposal.

Order of voting on proposals

Rule 29

If two or more proposals relate to the same question, the Commission shall, unless it decides otherwise, vote on the proposals in the order in which they have been submitted. The Commission may, after each vote on a proposal, decide whether to vote on the next proposal.

Taking decisions intersessionally

Rule 30

1. When necessary, a matter may be decided during the period between meetings by voting electronically via the Internet (e.g. email, secure Web site) or other means of communication (intersessional vote). Normally, such means of taking decisions shall be applied to matters of procedure, such as in deciding to convene a special session (Rule 3). However, in exceptional circumstances, where an urgent decision is necessary after efforts to reach a decision by

consensus have been exhausted or as otherwise decided, such means of taking a decision may be applied to matters of substance.

2. When it is necessary to decide any matter during the period between meetings, the Chairman, on his or her initiative, or at the request of a member that has made a proposal, may move adoption without delay of such proposal by intersessional vote. The Chairman, in consultation with the Vice-Chairman, shall decide on the necessity of considering the proposal intersessionally, and the Chairman shall decide whether the proposal raises a matter of procedure or a matter of substance.

3. In any case in which the Chairman determines that it is not necessary to consider a motion proposed by a member intersessionally, the Chairman shall promptly so inform that member of such determination and the reasons therefor, at which time the proposer may request an intersessional vote on the Chairman's determination, to be subject to the majority decision rule for questions of procedure set forth in the Convention.

4. In cases in which the Chairman has concurred on the necessity of considering a proposal moved by a member intersessionally, the Executive Director shall promptly transmit the proposal and both determinations made by the Chairman under paragraph 2 to members via the official contacts provided for in rule 7, requesting that responses be returned within 40 days.

5. Members shall promptly acknowledge receipt of any request for an intersessional vote. If no acknowledgment is received within 10 days of the date of transmittal, the Executive Director shall retransmit the request and shall use all additional means available to ensure that the request has been received.

6. Members shall respond within 40 days of the date of transmittal of a proposal, indicating whether they cast an affirmative vote, cast a negative vote, or abstain from voting. If no reply from a member is received within 40 days of transmittal, that member shall be recorded as having abstained.

7. The result of a decision taken by intersessional vote shall be ascertained by the Executive Director at the end of the voting period and promptly announced to all members. If any explanations of votes are received, these shall also be transmitted to all members. Subject to paragraphs 6 and 7 of article 20 of the Convention, if the proposal is adopted, it shall become binding 60 days after its adoption.

8. No proposal transmitted by the Executive Director for an intersessional vote shall be subject to amendment during the voting period.

9. A proposal that has been rejected by intersessional vote shall not be reconsidered by way of an intersessional vote until after the following meeting of the Commission, but may be reconsidered at that meeting.

VIII. RULES OF PROCEDURE OF SUBSIDIARY BODIES

Rules of procedure

Rule 31

1. Subject to the provisions of the Convention, each subsidiary body of the Commission may formulate and submit to the Commission for approval such rules as may be necessary for the efficient conduct of its functions.

2. Pending the approval of such rules, and except as otherwise provided in the Convention, these rules of procedure apply, mutatis mutandis, to the proceedings of subsidiary bodies, including the Scientific Committee and the Technical and Compliance Committee.

The Northern Committee

Rule 32

Notwithstanding all other provisions of these Rules, the committee established pursuant to article 11, paragraph 7, of the Convention, shall function in accordance with the procedures set out in Annex I.

IX. REPORTS OF MEETINGS

Reports of meetings

Rule 33

1. Summary reports of the sessions of the Commission shall be maintained in such form as the Commission shall decide. As a general rule, such reports shall be circulated as soon as possible, to all representatives, who shall inform the Secretariat within thirty working days after the circulation of the summary report of any changes they wish to have made.

2. The Executive Director shall communicate the text of all decisions adopted by the Commission pursuant to article 20 of the Convention to all members of the Commission and to each territory referred to in article 43 of the Convention, and to observers referred to in rule 36, within seven working days following the adoption of such decision.

X. SUSPENSION OF RIGHTS

Suspension of the exercise of voting rights

Rule 34

A contributor to the budget of the Commission which is in arrears in the payment of its financial contributions to the Commission shall not participate in the taking of decisions by the Commission if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The Commission may, nevertheless, permit such a contributor to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the contributor.

XI. PARTICIPATION BY TERRITORIES

Participation by territories

Rule 35

Notwithstanding all other provisions of these Rules, pursuant to article 43 of the Convention, the nature and extent of the participation of the territories listed in article 43, paragraph 1, of the Convention, shall be governed by the rules set out in Annex II.

XII. OBSERVERS

Observers

Rule 36

1. The following may participate as observers in the Commission and its subsidiary bodies:

(a) States, entities and fishing entities that participated in the Multilateral High Level Conference on the Conservation and Management of the Highly Migratory Fish Stocks, which are not members of the Commission;

(b) Any entity referred to in article 305, paragraph 1, subparagraphs (c), (d) and (e) of the 1982 United Nations Convention on the Law of the Sea which is situated in the Convention Area, which is not a member of the Commission;

(c) Any regional economic integration organization whose nationals and fishing vessels conduct or wish to conduct fishing for highly migratory fish stocks in the Convention Area;

(d) Other States and fishing entities with an interest in the work of the Commission, invited by the Commission, which are not members of the Commission;

(e) The Food and Agriculture Organization of the United Nations and other relevant intergovernmental organizations and South Pacific regional organizations invited by the Commission;

(f) Non-governmental organizations concerned with matters relevant to the implementation of the Convention admitted by the Commission pursuant to paragraph 4 of this rule which have demonstrated their interest in matters under consideration by the Commission.

2. Observers referred to in paragraph 1 (a), (b), (c) and (d) of this rule may participate subject to the provisions of these rules in the deliberations of the Commission and its subsidiary bodies but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

3. Observers referred to in paragraph 1 (e) of this rule may participate in the deliberations of the Commission and its subsidiary bodies upon the invitation of the Chairman on questions within the scope of their competence, but shall not be entitled to participate in the taking of decisions. Written statements submitted by such observers shall be distributed by the Secretariat to the members of the Commission.

4. A non-governmental organization desiring to participate as an observer shall notify the Executive Director in writing of its desire to participate at least fifty days in advance of the session. The Executive Director shall notify the members of the Commission of such request at least 45 days prior to the opening of the session at which the request is to be considered. Non-governmental organizations that have made such notification to the Executive Director shall be

invited to participate in the session as observers unless a majority of the members of the Commission objects to the request in writing at least twenty days before the opening of the session. Such observer status shall remain in effect for future sessions unless the Commission decides otherwise.

5. Observers referred to in paragraph 1 (f) of this rule may sit at meetings of the Commission and its subsidiary bodies and upon the invitation of the Chairman and subject to the approval of the Commission or the relevant subsidiary body may make oral statements on matters within the scope of their activities. Written statements submitted by observers referred to in paragraph 1 (f) of this rule within the scope of their activities which are relevant to the work of the Commission may, subject to the approval of the Chairman, be distributed at meetings of the Commission and its subsidiary bodies.

XIII. AMENDMENTS

Method of amendment

Rule 36

These rules of procedure may be amended by a decision of the Commission, taken by consensus.

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Annex I

Rules of procedure relating to the Northern Committee

1. The committee established under article 11, paragraph 7, of the Convention shall be called the Northern Committee. Members situated in the Convention area north of 20° north parallel and members fishing in that area shall be members of the Northern Committee. Any member of the Commission not represented on the Committee may send a representative to participate in the deliberations of the Committee as an observer.

2. The Northern Committee shall, by consensus, make recommendations on the formulation of conservation and management measures* in respect of stocks which occur mostly in the area north of 20° north parallel (hereinafter referred to as "northern stocks"). Such recommendations shall relate to the northern stocks in the area north of 20° north parallel. Such recommendations shall be consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention. The Commission shall not take a decision with regard to any such measure without a recommendation concerning such measure from the Northern Committee.

3. The Commission may, however, request the Northern Committee to formulate and send back a recommendation on conservation and management measures for a northern stock in such a period of time as the Commission considers appropriate. The Northern Committee shall comply with such request by the Commission.

4. The Northern Committee shall, by consensus, make recommendations on the implementation for the area north of 20° north parallel of such conservation and management measures* as may be adopted by the Commission. Such recommendations shall be consistent with the general policies and measures adopted by the Commission in respect of the stocks or species in question and with the principles and measures for conservation and management set out in the Convention.

5. "Northern stocks" are understood to be northern Pacific bluefin, northern albacore and the northern stock of swordfish. The Commission, based on the advice of the Scientific Committee, shall periodically review and determine whether this list should be revised.

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* Conservation and management measures are those provided for in article 10, paragraph 2, of the Convention.

Annex II

Rules of procedure on the nature and extent of participation of territories

1. Territories listed in article 43 of the Convention would be "Participating Territories" once they have the relevant authorization. Such authorization shall be in the form of a declaration, filed with the depositary, by the Contracting Party having responsibility for the international affairs of such Participating Territory.

2. The Declaration would describe the distribution of the Territory's competencies and the extent of its responsibilities. The Declaration should be updated appropriately as the Participating Territory's capacities evolve.

3. Participating Territories have the right to be present and to speak at the meetings of the Commission and its subsidiary bodies and to receive all communications in respect of those meetings. Participating Territories would not have rights which are inconsistent with their territorial status (such as being elected Chair or being counted towards a quorum).

4. In relation to matters over which a Participating Territory has competence, such Territory may make proposals and offer amendments.

5. In relation to matters over which a Participating Territory does not have competence, it may, with the specific authorization of the Contracting Party having responsibility for that Territory's international affairs, make proposals and offer amendments.

6. Additional rights and restrictions on rights shall be determined by the Contracting Parties in rules of procedure, as necessary, consistent with Article 43.

7. In accordance with article 20, of the Convention, the Commission will make all efforts to reach decisions by consensus. Consistent with their full participation in the work of the Commission, all Participating Territories would participate in the Commission's deliberations to reach consensus. Participating Territories' views would be properly considered and taken into account in reaching any decision. Seeking a consensus will be especially important in decisions of economic significance to Participating Territories such as:

(a) decisions on allocation, where a Participating Territory is responsible for the conservation and management of resources in its waters;

(b) decisions on the scale of assessments, where a Participating Territory makes independent and voluntary contributions to the Commission's budget.

8. Where a consensus could be reached but for the views of a Participating Territory that has full competence over the resources in its waters (in decisions on allocation) or a Participating Territory that contributes to the Commission's budget (in decisions on budget and the scale of assessments), such a Participating Territory may request an additional period of time of up to twelve hours on the affected agenda item for consultation. Notwithstanding this, a Participating Territory could not block consensus on a proposal.

9. A Participating Territory would need to meet a pre-determined standard in order to acquire or exercise the right to vote within the Commission. The standards and the process and criteria for assessing whether the standards have been met would need further discussion and elaboration by the Contracting Parties.

WCPFC Preparatory Conference
First session
Christchurch, New Zealand
23 – 28 April, 2001

WCPFC/PrepCon/WP.2
25 April 2001

DRAFT FINANCIAL REGULATIONS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN

Prepared by the Secretariat

1. The draft financial regulations for the Commission contained in the present document have been prepared by the Secretariat on the basis of the financial regulations of international organizations and fisheries management organizations world wide, taking into account the considerations identified in document WCPFC/PrepCon/BP.4.

2. The draft regulations cover all matters related to the financial management of an intergovernmental organization in accordance with generally accepted practices and would allow for the establishment of trust or special funds as necessary. Such trust or special funds could include the fund to facilitate the effective participation of developing States referred to in article 30, paragraph 3, of the Convention. It should be noted, however, that no specific provision has been included in the current draft for the implementation of article 30, paragraph 3, of the Convention concerning guidelines for the administration of such a fund.

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DRAFT FINANCIAL REGULATIONS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN

Prepared by the Secretariat

REGULATION 1
APPLICABILITY

1.1 These Regulations shall govern the financial administration of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereinafter referred to as "the Commission") established under article 9 of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereinafter referred to as "the Convention").

REGULATION 2
FINANCIAL YEAR

2.1 The financial year shall be for 12 months, commencing 1 January and ending 31 December, both dates inclusive.

REGULATION 3
THE BUDGET

3.1 A draft budget comprising estimates of receipts by the Commission and of expenditures by the Commission and any subsidiary body of the Commission established pursuant to article 11 of the Convention shall be prepared by the Executive Director for the ensuing year.

3.2 The draft budget shall include a statement of the significant financial implications for subsequent financial years in respect of any proposed work programmes presented in terms of administrative, recurrent and capital expenditure.

3.3 The draft budget shall be divided by functions into items and, where necessary or appropriate, into sub-items.

3.4 The draft budget shall be accompanied by details both of the appropriations made for the previous year and estimated expenditure against those appropriations, together with such information annexes as may be required by the Commission or deemed necessary or desirable by the Executive Director. The precise form in which the draft budget is to be presented shall be prescribed by the Commission.

3.5 The Executive Director shall submit the draft budget to all members of the Commission at least 60 days prior to the annual meeting of the Commission. At the same time, and in the same form as the draft budget, the Executive Director shall prepare and submit to all members of the Commission a forecast budget for the subsequent financial year.

3.6 The draft budget and the forecast budget shall be presented in United States dollars.

3.7 At each annual meeting, the Commission shall decide upon its annual budget and the budget of any subsidiary bodies.

3.8 Supplementary budget proposals shall be prepared in a form consistent with the approved budget. The provisions of these Regulations shall be applicable to the proposed supplementary budget to the extent possible.

REGULATION 4
APPROPRIATIONS

4.1 The appropriations adopted by the Commission shall constitute an authorization for the Executive Director to incur obligations and make payments for the purposes for which the appropriations were adopted and up to the amounts so voted.

4.2 Unless the Commission decides otherwise, the Executive Director may also incur obligations against future financial years before appropriations are adopted when such obligations are necessary for the continued effective functioning of the Commission, provided such obligations are restricted to administrative requirements of a continuing nature not exceeding the scale of such requirements as authorized in the budget of the current financial year. In other circumstances the Executive Director may incur obligations against future financial years only as authorized by the Commission.

4.3 Appropriations shall remain available for twelve months following the end of the financial year to which they relate to the extent that they are required to discharge obligations in respect of goods supplied and services rendered in the financial year and to liquidate any other outstanding legal obligation of the financial year. The balance of the appropriations shall be surrendered.

4.4 At the end of the twelve-month period provided in regulation 4.3 above, the then remaining balance of any appropriations retained will be surrendered. Any unliquidated obligations of the financial year in question shall, at that time, be cancelled or, where the obligation remains a valid charge, transferred as an obligation against current appropriations.

4.5 The Chairman of the Commission may authorize the Executive Director to make transfers of up to 10 per cent of appropriations between items. The Executive Director may authorize the transfer of up to 10 per cent of appropriations between sub-items of an item. All such transfers must be reported by the Executive Director to the next annual meeting of the Commission.

4.6 The Commission shall prescribe the conditions under which unforeseen and extraordinary expenses may be incurred.

4.7 The Executive Director shall prudently manage the appropriations voted for a financial year, taking into account the availability of cash balances.

REGULATION 5
PROVISION OF FUNDS

5.1 The funds of the Commission shall include:

(a) assessed contributions made by members of the Commission;

(b) funds received by the Commission pursuant to article 30, paragraph 3, of the Convention;

(c) voluntary contributions made by members or other entities; and

(d) such other funds to which the Authority may become entitled or may receive, including income from investment.

5.2 Each member of the Commission shall contribute to the budget in accordance with article 18, paragraph 2, of the Convention. Pending the receipt of such contributions, the appropriations may be financed from the working capital fund.

5.3 On approval of the budget for a financial year, the Executive Director shall send a copy thereof to all members of the Commission informing them of their contributions and requesting them to remit their contributions due.

5.4 Contributions and advances shall be considered as due and payable in full within thirty days of the receipt of the communication of the Executive Director referred to in regulation 5.3 above, or as of the first day of the calendar year to which they relate, whichever is the later. As of 1 January of the following calendar year, the unpaid balance of such contributions and advances shall be considered to be one year in arrears.

5.5 Annual contributions and advances to the working capital fund shall be assessed and paid in United States dollars.

5.6 Payments made by a member of the Commission shall be credited first to the working capital fund and then to the contributions due, in the order in which the member was assessed.

5.7 The Executive Director shall submit to each regular session of the Commission a report on the collection of contributions and advances to the working capital fund.

5.8 (a) Except in the first financial year, a new member of the Commission whose membership becomes effective during the first six months of the financial year shall be liable to pay the full amount of the annual contribution which would have been payable had it been a member of the Commission when assessments were made under article 18, paragraph 2, of the Convention. A new member whose membership becomes effective during the last six months of the financial year, shall be liable to pay half of the amount of the annual contribution referred to above. In the first financial year all members whose membership becomes effective during the first nine months of the year shall be liable to pay the full amount of the annual contributions. A member whose membership becomes effective during the last three months of the first financial year shall be liable to pay half the amount of the first financial contribution.

(b) Where contributions are received from new members the contributions of existing members shall be adjusted in accordance with Regulation 6.1(d).

REGULATION 6
FUNDS

6.1 (a) There shall be established a General Fund for the purpose of accounting for the income and expenditure of the Commission and any subsidiary bodies established pursuant to the Convention;

(b) Contributions paid under Regulation 5.2, miscellaneous income and any advances made from the working capital fund to finance general administrative expenditure shall be credited to the General Fund;

(c) Any cash surplus in the General Fund at the close of a financial year that is not required to meet undischarged commitments in terms of Regulations 4.3 and 4.4 shall be divided in proportion to the contributions made by existing members under Regulation 5.2 in the current financial year and used to offset such members' contributions for the ensuing financial year. This provision shall not apply at the end of the first financial year when surplus funds other than those resulting from contributions by new members may be carried over into the following financial year;

(d) Where contributions are received from new members after the commencement of the financial year and such funds have not been taken into account in formulating the budget, appropriate adjustment shall be made to the level of the assessed contributions of existing members and such adjustments recorded as advances made by such members;

(e) Advances made by members shall be carried over to the credit of the members which have made such advances.

6.2 There shall be established a working capital fund in an amount and for purposes to be determined from time to time by the Commission. The source of moneys of the working capital fund shall be advances from members of the Commission and these advances shall be carried to the credit of members which have made such advances.

6.3 Advances made from the working capital fund to finance budgetary appropriations shall be reimbursed to the fund as soon as income is available for that purpose.

6.4 Income derived from investments of the working capital fund shall be credited to miscellaneous income.

6.5 Trust funds, reserve and special accounts may be established by the Executive Director and shall be reported to the Commission.

6.6 The purpose and limits of each trust fund, reserve and special account shall be clearly defined by the Commission. Unless otherwise provided by the Commission, such funds and accounts shall be administered in accordance with the present Regulations.

REGULATION 7
OTHER INCOME

7.1 All income other than contributions to the budget under Regulation 5 and that referred to in Regulation 7.3 below, shall be classified as miscellaneous income and credited to the General Fund. The use of miscellaneous income shall be subject to the same financial controls as activities financed from regular budget appropriations.

7.2 Voluntary contributions above and beyond assessed contributions may be accepted by the Executive Director provided that the purposes for which the contributions are made are consistent

with the policies, aims and activities of the Commission. Voluntary contributions offered by non-members may be accepted, subject to agreement by the Commission that the purposes of the contribution are consistent with the policies, aims and activities of the Commission.

7.3 Voluntary contributions accepted for purposes specified by the donor shall be treated as trust or special funds under Regulation 6.5.

7.4 Moneys accepted in respect of which no purpose is specified shall be treated as miscellaneous income and reported as "gifts" in the accounts of the financial period.

REGULATION 8
CUSTODY AND INVESTMENT OF FUNDS

8.1 The Executive Director shall designate the bank or banks in which the funds of the Commission shall be kept and shall report the identity of the bank or banks so designated to the Commission.

8.2 (a) The Executive Director may make short-term investments of moneys not needed for the immediate requirements of the Commission. Such investments shall be restricted to securities and other investments issued under Government guarantee. The details of investment transactions and income derived shall be reported in the documents supporting the budget.

(b) With regard to moneys held in trust or special funds for which use is not required for at least 12 months, longer-term investments may be authorized by the Commission provided such action is consistent with the terms and conditions under which the moneys were lodged with the Commission.

REGULATION 9
INTERNAL CONTROL

9.1 The Executive Director shall:

(a) establish detailed financial rules and procedures after consultation with the Auditor to ensure effective financial administration and the exercise of economy in the use of funds;

(b) cause all payments to be made on the basis of supporting vouchers and other documents which ensure that the goods or services have been received and that payment has not previously been made;

(c) designate the officers who may receive moneys, incur obligations and make payments on behalf of the Commission;

(d) maintain and be responsible for internal financial control to ensure:

(i) the regularity of the receipt, custody and disposal of all funds and other financial resources of the Commission;
(ii) the conformity of obligations and expenditures with the appropriations adopted by the Commission, or with the purposes and rules relating to trust and special funds; and

(iii) the economic use of the resources of the Commission.

9.2 No obligations shall be incurred until allotments or other appropriate authorizations have been made in writing under the authority of the Executive Director.

9.3 The Executive Director may make such ex gratia payments as he or she deems to be necessary in the interest of the Commission, provided that a statement of such payments shall be submitted to the Commission with the accounts.

9.4 The Executive Director may, after full investigation, authorize the writing-off of losses of cash, stores and other assets, provided that a statement of all such amounts written off shall be submitted to the Auditor with the accounts together with the justifications attached thereto. Such losses shall be included in the annual accounts.

9.5 Tenders in writing for equipment, supplies and other requirements shall be invited by advertisement, or by direct requests for quotation from at least three persons or firms able to supply the equipment, supplies or other requirements, if such exist, in connection with all purchases or contracts, the amounts of which exceed US$1,000. For amounts exceeding US$500 but up to US$1,000, competition shall be obtained either by the above means or by telephone or personal enquiry. The foregoing rules shall, however, not apply in the following cases:

(a) where it has been ascertained that only a single supplier exists and that fact is so certified by the Executive Director;

(b) in case of emergency, or where, for any other reason, these rules would not be in the best financial interests of the Commission and that fact is so certified by the Executive Director.

REGULATION 10
THE ACCOUNTS

10.1 The Executive Director shall ensure that appropriate records and accounts are kept of the transactions and affairs of the Commission and shall do all things necessary to ensure that all payments out of the Commission's moneys are correctly made and properly authorized and that adequate control is maintained over the assets of, or in the custody of, the Commission and over the incurring of liabilities by the Commission.

10.2 The Executive Director shall submit to the Commission, not later than 31 March immediately following the end of the financial year, annual financial statements showing, for the financial year to which they relate:

(a) the income and expenditure relating to all funds and accounts;

(b) the situation with regard to budget appropriations, including:

(i) the original budget appropriations;
(ii) the approved expenditure in excess of the original budget appropriations;
(iii) any other income;
(iv) the amounts charged against these appropriations and other income;

(c) the financial assets and liabilities of the Commission;

(d) details of investments;

(e) losses of assets proposed in accordance with Regulation 9.3.

The Executive Director shall also give such other information as may be appropriate to indicate the financial position of the Commission.

10.3 The accounts of the Commission shall be presented in United States dollars. Accounting records may, however, be kept in such currency or currencies as the Executive Director may deem necessary.

10.4 Appropriate separate accounts shall be kept for all special, reserve and trust funds.

10.5 The annual financial statements shall be submitted by the Executive Director to the Auditor at the same time as they are submitted to the Commission under paragraph 2 of this Regulation.

REGULATION 11
EXTERNAL AUDIT

11.1 The Commission shall appoint an external auditor who shall be the Auditor-General or equivalent statutory authority from a member of the Commission or an internationally recognized independent auditor with experience in the audit of international organizations. The Auditor shall be appointed for a period of two years and may be reappointed. The Commission will ensure respect for the Auditor's independence of the Commission, any subsidiary bodies established under the Convention and the Commission's staff and shall make provision for appropriate funds to the Auditor.

11.2 The Auditor shall be completely independent and solely responsible for the conduct of the audit.

11.3 The Auditor or a person or persons authorized by him or her shall be entitled at all reasonable times to full and free access to all accounts and records of the Commission relating directly or indirectly to the receipt or payment of moneys by the Commission or to the acquisition, receipt, custody or disposal of assets by the Commission and may make copies of or take extracts from any such accounts or records.

11.4 If required by the Commission to perform a full audit, the Auditor shall conduct his or her examination of the financial statements in conformity with generally accepted auditing standards and shall report to the Commission on all relevant matters, including:

(a) whether, in his or her opinion, the statements are based on proper accounts and records;

(b) whether the statements are in agreement with the accounts and the records;

(c) whether, in his or her opinion, the income, expenditure and investment of moneys and the acquisition and disposal of assets by the Commission during the year have been in accordance with these Regulations; and

(d) observations with respect to the efficiency and economy of the financial procedures and conduct of business, the accounting system, internal financial controls and the administration and management of the Commission.

11.5 If required by the Commission to perform a review audit, the Auditor shall review the statements and accounting controls in operation. He or she shall report to the Commission whether anything has come to his or her attention which would cause him or her to doubt whether:

(a) the statements are based on proper accounts and records;

(b) the statements are in agreement with the accounts and the records; or

(c) the income, expenditure and investment of moneys and the acquisition and disposal of assets by the Commission during the year have been in accordance with these Regulations.

11.6 The Executive Director shall provide the Auditor with the facilities he or she may require in the performance of the audit.

11.7 The Auditor shall issue a report on the audit of the financial statements and relevant schedules relating to the accounts for the financial period, which shall include such information as the Auditor deems necessary with regard to matters referred to in Regulations 11.5 and 11.6, as appropriate. The Executive Director shall provide to the Commission a copy of the audit report and the audited financial statements within 30 days of their receipt.

11.8 The Commission may request the Auditor to perform certain specific examinations and issue separate reports on the results.

REGULATION 12
ACCEPTANCE OF ANNUAL FINANCIAL STATEMENTS

12.1 The Commission shall, following consideration of the audited annual financial statements and audit report submitted to it under Regulation 11.5 of these Regulations, signify its acceptance of the audited annual financial statements or take such other action as it may consider appropriate.

REGULATION 13
INSURANCE

13.1 The Commission may take out suitable insurance with a reputable financial institution against normal risks to its assets.

REGULATION 14
GENERAL PROVISION

14.1 These Regulations shall become effective on the date they are approved by the Commission and shall apply to the financial year 200.. and to subsequent financial periods. Subject to the provisions of the Convention, these Regulations may be amended by the Commission in accordance with the Rules of Procedure.

14.2 Where the Commission or any of its subsidiary bodies is considering matters which may lead to a decision which has financial or administrative implications, it shall have before it an evaluation of those implications from the Executive Director.

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WCPFC Preparatory Conference
Fifth session
Rarotonga, Cook Islands
29 September – 3 October 2003

WCPFC/PrepCon/WP.2/Rev.1
25 August 2003

REVISED DRAFT FINANCIAL REGULATIONS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN

Prepared by the Secretariat

1. At the fourth session of the Preparatory Conference, held at Nadi, Fiji from 5 – 9 May 2003, Working Group I had a first reading of the draft financial regulations for the Commission contained in document WCPFC/PrepCon/WP.2. That document had been prepared by the Secretariat in April 2001 on the basis of the financial regulations of international organizations and fisheries management organizations world wide, taking into account the considerations identified in document WCPFC/PrepCon/BP.4. Following consideration of the draft by Working Group I, the interim secretariat was requested to prepare a revised draft of the financial regulations taking into account the comments and suggestions made at the fourth session of the Conference.

2. The revised draft regulations contained in the present document cover all matters related to the financial management of an intergovernmental organization in accordance with generally accepted practices. They have been prepared by the interim secretariat with the advice and assistance of an expert in international financial administration. In addition to minor editorial changes and further streamlining of the text where possible, the following are the most significant revisions that have been introduced to the draft:

(a) Regulation 3 has been revised to introduce greater flexibility and to clarify inconsistencies that appeared in the earlier text. In Regulation 3.7 the possibility of establishing an advisory committee on finance and administration has been introduced. Although, at PrepCon IV, some participants in the working group suggested establishing such a committee as a formal subsidiary body of the Commission, others were concerned at the potential proliferation of such bodies and its impact upon smaller delegations. The revisions introduced in Regulation 3.7 therefore envisages the possibility of an informal advisory committee, that could be established on an ad hoc basis to work in the margins of each meeting of the Commission.

(b) Regulation 4.2 has been revised to provide greater flexibility to the Executive Director, who is entrusted with the financial management of the organization, and to recognize the need to accommodate multi-year, output-based, programme budgeting. In this regard, the accountability of the Executive Director has been emphasized in Regulation 4.6.

(c) Regulation 6.1 has been revised in order to clarify its intent. In addition, in the light of the comments made during PrepCon IV, greater flexibility to redistribute any surplus in the budget has been introduced in Regulation 6.2.

(d) A new Regulation 6.7 has been introduced to reflect the need to provide for a special requirements fund.

(e) Regulation 9 has been streamlined and made more consistent with modern accounting practices. Although less prescriptive than the previous draft, it is suggested that many of the matters referred to in Regulation 9 could be elaborated in the detailed financial procedures, which would be scrutinized by the Commission.

(f) Regulations 10 and 11 have been streamlined, without substantive revision, in order to clarify certain inconsistencies that were noted during discussions at PrepCon IV. In particular, it is now made clear that the Executive Director must submit the accounts to the Auditor no later than 31 March each year. The audit report and the financial statements must be circulated to the members of the Commission within 30 days of their receipt by the Executive Director.

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REVISED DRAFT FINANCIAL REGULATIONS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN

Prepared by the Secretariat

REGULATION 1
APPLICABILITY

1.1 These Regulations shall govern the financial administration of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereinafter referred to as "the Commission") established under article 9 of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereinafter referred to as "the Convention").

REGULATION 2
FINANCIAL YEAR

2.1 The financial year shall be for 12 months, commencing 1 January and ending 31 December, both dates inclusive.

REGULATION 3
THE BUDGET

3.1 A draft budget comprising estimates of receipts by the Commission from all sources and of expenditures by the Commission shall be prepared by the Executive Director for the ensuing year.

3.2 The draft budget shall be divided into parts, sections and, as appropriate, programme support. It shall be accompanied by such information, annexes and explanatory statements as may be requested by the Commission, including a statement on the main changes in comparison with the budget of the previous year, and such further annexes or statements as the Executive Director may deem necessary and useful. The Commission may establish guidelines as to the format which the draft budget is to be presented.

3.3 The draft budget shall be accompanied by details of the appropriations made for the previous year and the expenditure against those appropriations.

3.4 The draft budget shall include a statement of the significant financial implications for subsequent financial years in respect of any proposed work programmes presented in terms of administrative, recurrent and capital expenditure.

3.5 The Executive Director shall submit the draft budget to all members of the Commission at least 30 days prior to the annual meeting of the Commission. At the same time, and in the same form as the draft budget, the Executive Director shall prepare and submit to all members of the Commission a forecast budget for the subsequent financial year.

3.6 The draft budget and the forecast budget shall be presented in United States dollars.

3.7 At each annual meeting, the Commission shall decide upon its annual budget. The Commission may establish, for this purpose, a committee to provide advice and recommendations to the Commission on matters related to the budget, finance and administration of the Commission.

3.8 Supplementary budget proposals may be prepared by the Executive Director if exceptional circumstances make this necessary. Supplementary budget proposals shall be prepared in a form consistent with the approved budget. The provisions of these Regulations shall be applicable to the proposed supplementary budget to the extent possible.

REGULATION 4
APPROPRIATIONS

4.1 The appropriations adopted by the Commission shall constitute an authorization for the Executive Director to incur obligations and make payments for the purposes for which the appropriations were adopted and up to the amounts so voted.

4.2 The Executive Director may incur obligations against future financial years before appropriations are adopted when such obligations are necessary for the continued effective functioning of the Commission, provided such obligations are restricted to administrative requirements of a continuing nature not exceeding the scale of such requirements as authorized in the budget of the current financial year. The Executive Director may also enter into obligations for future financial periods when such obligations are for programme activities which have been approved by the Commission and are expected to continue beyond the end of the current financial year.

4.3 Appropriations shall be available for obligation during the financial year to which they relate. Appropriations shall remain available for twelve months following the end of the financial year to which they relate to the extent that they are required to discharge obligations in respect of goods supplied and services rendered in the financial year and to liquidate any other outstanding legal obligation of the financial year.

4.4 At the end of the twelve-month period provided in regulation 4.3 above, the then remaining balance of any appropriations retained will be surrendered. Any unliquidated obligations of the financial year in question shall, at that time, be cancelled or, where the obligation remains a valid charge, transferred as an obligation against current appropriations.

4.5 The Commission shall prescribe the conditions under which unforeseen and extraordinary expenses may be incurred.

4.6 The Executive Director shall prudently manage the appropriations, taking into account the availability of cash balances. The Executive Director shall be accountable to the Commission for the proper management of the financial resources in accordance with these Regulations.

REGULATION 5
PROVISION OF FUNDS

5.1 The funds of the Commission shall include:

(a) assessed contributions made by members of the Commission;

(b) funds received by the Commission pursuant to article 30, paragraph 3, of the Convention;

(c) voluntary contributions made by members or other entities; and

(d) such other funds to which the Authority may become entitled or may receive, including income from investment.

5.2 Each member of the Commission shall contribute to the budget in accordance with article 18, paragraph 2, of the Convention. Pending the receipt of such contributions, the appropriations may be financed from the working capital fund.

5.3 On approval of the budget for a financial year, the Executive Director shall send a copy thereof to all members of the Commission informing them of their contributions and requesting them to remit their contributions due.

5.4 Annual contributions and advances to the working capital fund shall be considered as due and payable in full within sixty days of the receipt of the communication of the Executive Director referred to in regulation 5.3 above, or as of the first day of the calendar year to which they relate, whichever is the later. As of 1 January of the following calendar year, the unpaid balance of such contributions and advances shall be considered to be one year in arrears.

5.5 Annual contributions and advances to the working capital fund shall be assessed and paid in United States dollars.

5.6 Payments made by a member of the Commission shall be credited first to the working capital fund and then to the annual contributions due, in the order in which the member was assessed.

5.7 The Executive Director shall submit to each regular session of the Commission a report on the collection of annual contributions and advances to the working capital fund.

5.8 Except in the first financial year, a new member of the Commission whose membership becomes effective during the first six months of the financial year shall be liable to pay the full amount of the annual contribution which would have been payable had it been a member of the Commission when assessments were made under article 18, paragraph 2, of the Convention. A new member whose membership becomes effective during the last six months of the financial year, shall be liable to pay half of the amount of the annual contribution referred to above. In the first financial year all members whose membership becomes effective during the first nine months of the year shall be liable to pay the full amount of the annual contributions. A member whose membership becomes effective during the last three months of the first financial year shall be liable to pay half the amount of the first financial contribution.

REGULATION 6
FUNDS

6.1 (a) There shall be established a General Fund for the purpose of accounting for the income and expenditure of the Commission;

(b) Contributions paid under Regulation 5.2, miscellaneous income and any advances made from the working capital fund to finance general administrative expenditure shall be credited to the General Fund;

(c) Any cash surplus in the General Fund at the close of a financial year that is not required to meet undischarged commitments may be treated as income to the following year's budget with a consequential effect on the net amount by which the contributions of members are assessed;

(e) Advances made by members shall be carried over to the credit of the members which have made such advances.

6.2 There shall be established a working capital fund in an amount and for purposes to be determined from time to time by the Commission. The source of moneys of the working capital fund shall be advances from members of the Commission, together with such other funds as the Commission may determine, including, if the Commission so decides, any surplus from appropriations to the annual budget, and these advances shall be carried to the credit of members which have made such advances. The formula for assessment of advances to the working capital fund will be based on that established for the annual budget of the Commission.

6.3 Advances made from the working capital fund to finance budgetary appropriations shall be reimbursed to the fund as soon as income is available for that purpose.

6.4 Income derived from investments of the working capital fund shall be credited to miscellaneous income.

6.5 Trust funds, reserve and special accounts may be established by the Executive Director and shall be reported to the Commission.

6.6 The purpose and limits of each trust fund, reserve and special account shall be clearly defined by the Commission. Unless otherwise provided by the Commission, such funds and accounts shall be administered in accordance with the present Regulations.

6.7 A special requirements fund shall be established for the following purposes:

(a) funding the costs of travel and subsistence for one representative from each small island developing State member of the Commission and participating territory to each meeting of the Commission and its subsidiary bodies;

(b) assisting small island developing State members of the Commission and participating territories with human resources development, technical assistance and transfer of technology in relation to conservation and management of highly migratory fish stocks in the Convention Area and development of fisheries for such stocks;

(c) building capacity for activities in key areas such as effective exercise of flag State responsibilities, monitoring, control and surveillance, data collection and scientific research relevant to straddling and highly migratory fish stocks on a national and/or regional level.

REGULATION 7
OTHER INCOME

7.1 All income other than contributions to the budget under Regulation 5 and that referred to in Regulation 7.3 below, shall be classified as miscellaneous income and credited to the General Fund. The use of miscellaneous income shall be subject to the same financial controls as activities financed from regular budget appropriations.

7.2 Voluntary contributions above and beyond assessed contributions may be accepted by the Executive Director provided that the purposes for which the contributions are made are consistent with the policies, aims and activities of the Commission. Voluntary contributions offered by non-members may be accepted, subject to agreement by the Commission that the purposes of the contribution are consistent with the policies, aims and activities of the Commission.

7.3 Voluntary contributions accepted for purposes specified by the donor shall be treated as trust or special funds under Regulation 6.5.

7.4 Moneys accepted in respect of which no purpose is specified shall be treated as miscellaneous income and reported as “gifts” in the accounts of the financial period.

REGULATION 8
CUSTODY AND INVESTMENT OF FUNDS

8.1 The Executive Director shall designate the bank or banks in which the funds of the Commission shall be kept and shall report the identity of the bank or banks so designated to the Commission.

8.2 (a) The Executive Director may make short-term investments of moneys not needed for the immediate requirements of the Commission. Such investments shall be restricted to securities and other investments issued under Government guarantee. The details of investment transactions and income derived shall be reported in the documents supporting the budget.

(b) With regard to moneys held in trust or special funds for which use is not required for at least 12 months, longer-term investments may be authorized by the Commission provided such action is consistent with the terms and conditions under which the moneys were lodged with the Commission.

REGULATION 9
INTERNAL CONTROL

9.1 The Executive Director shall:

(a) establish detailed financial rules and procedures to ensure effective financial administration and the exercise of economy in the use of funds These rules and procedures shall be brought to the Commission for its consideration;

(b) cause all payments to be made on the basis of supporting vouchers and other documents which ensure that the goods or services have been received and that payment has not previously been made;

(c) designate the officers who may receive moneys, incur obligations and make payments on behalf of the Commission;

(d) maintain and be responsible for internal financial control to ensure:

(i) the regularity of the receipt, custody and disposal of all funds and other financial resources of the Commission;
(ii) the conformity of obligations and expenditures with the appropriations adopted by the Commission, or with the purposes and rules relating to trust and special funds; and
(iii) the economic use of the resources of the Commission.

9.2 No obligations shall be incurred until allotments or other appropriate authorizations have been made in writing under the authority of the Executive Director.

9.3 The Executive Director may make such ex gratia payments as he or she deems to be necessary in the interest of the Commission, provided that a statement of such payments shall be submitted to the Commission with the accounts.

9.4 The Executive Director may, after full investigation, authorize the writing-off of losses of cash, stores and other assets, provided that a statement of all such amounts written off shall be submitted to the Auditor with the accounts together with the justifications attached thereto. Such losses shall be included in the annual accounts.

9.5 Substantial purchases of equipment, supplies and other requirements as specified in the detailed financial rules and procedures shall normally be by tender, except:

(a) where it has been ascertained that only a single supplier exists and that fact is so certified by the Executive Director;

(b) in case of emergency, or where, for any other reason, these rules would not be in the best financial interests of the Commission and that fact is so certified by the Executive Director.

REGULATION 10
THE ACCOUNTS

10.1 The Executive Director shall ensure that appropriate records and accounts are kept of the transactions and affairs of the Commission and shall do all things necessary to ensure that all payments out of the Commission's moneys are correctly made and properly authorized and that adequate control is maintained over the assets of, or in the custody of, the Commission and over the incurring of liabilities by the Commission.

10.2 The Executive Director shall submit annual financial statements. The annual financial statements shall show, for the financial year to which they relate:

(a) the income and expenditure relating to all funds and accounts;

(b) the situation with regard to budget appropriations, including:

(i) the original budget appropriations;

(ii) the approved expenditure under or in excess of the original budget appropriations;
(iii) any other income;
(iv) the amounts charged against these appropriations and other income;

(c) the financial assets and liabilities of the Commission;

(d) investments;

(e) losses of assets proposed in accordance with Regulation 9.4.

The Executive Director shall also give such other information as may be appropriate to indicate the financial position of the Commission.

10.3 The accounts of the Commission shall be presented in United States dollars. Accounting records may, however, be kept in such currency or currencies as the Executive Director may deem necessary.

10.4 Appropriate separate accounts shall be kept for all special, reserve and trust funds.

10.5 The annual financial statements shall be submitted by the Executive Director to the Auditor not later than 31 March following the end of the financial year.

REGULATION 11
EXTERNAL AUDIT

11.1 The Commission shall appoint an external auditor who shall be the Auditor-General or equivalent statutory authority from a member of the Commission or an internationally recognized independent auditor with experience in the audit of international organizations. The Auditor shall be appointed for a period of two years and may be reappointed. The Commission will ensure respect for the Auditor's independence of the Commission, any subsidiary bodies established under the Convention and the Commission's staff, and shall make provision for appropriate funds to the Auditor.

11.2 The Auditor shall be completely independent and solely responsible for the conduct of the audit.

11.3 The Auditor or a person or persons authorized by him or her shall be entitled at all reasonable times to full and free access to all accounts and records of the Commission relating directly or indirectly to the receipt or payment of moneys by the Commission or to the acquisition, receipt, custody or disposal of assets by the Commission and may make copies of or take extracts from any such accounts or records.

11.4 The Auditor shall conduct his or her examination of the financial statements in conformity with generally accepted auditing standards and shall report on all relevant matters, including:

(a) whether, in his or her opinion, the statements are based on proper accounts and records;

(b) whether the statements are in agreement with the accounts and the records;

(c) whether, in his or her opinion, the income, expenditure and investment of moneys and the acquisition and disposal of assets by the Commission during the year have been in accordance with these Regulations; and

(d) observations with respect to the efficiency and economy of the financial procedures and conduct of business, the accounting system, internal financial controls and the administration and management of the Commission.

11.5 The Executive Director shall provide the Auditor with the facilities he or she may require in the performance of the audit.

11.6 The Auditor shall issue a report on the audit of the financial statements and relevant schedules relating to the accounts for the financial period, which shall include such information as the Auditor deems necessary with regard to matters referred to in Regulation 11.4 as appropriate. The Executive Director shall provide to the Commission a copy of the audit report and the audited financial statements within 30 days of their receipt.

11.7 The Commission may request the Auditor to perform certain specific examinations and issue separate reports on the results.

REGULATION 12
ACCEPTANCE OF ANNUAL FINANCIAL STATEMENTS

12.1 The Commission shall, following consideration of the audited annual financial statements and audit report submitted to it under Regulation 11.7 of these Regulations, signify its acceptance of the audited annual financial statements or take such other action as it may consider appropriate.

REGULATION 13
INSURANCE

13.1 The Commission may take out suitable insurance with a reputable financial institution against normal risks to its assets.

REGULATION 14
GENERAL PROVISION

14.1 These Regulations shall become effective on the date they are approved by the Commission and shall apply to the financial year 200.. and to subsequent financial periods. Subject to the provisions of the Convention, these Regulations may be amended by the Commission in accordance with the Rules of Procedure.

14.2 Where the Commission or any of its subsidiary bodies is considering matters which may lead to a decision which has significant financial or administrative implications, it shall have before it an evaluation of those implications from the Executive Director.

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WCPFC/PrepCon/WP.2/Rev.2
1 August 2004

FURTHER REVISED DRAFT FINANCIAL REGULATIONS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN

Prepared by the Secretariat

1. Draft Financial Regulations for the Commission were prepared by the Secretariat in 2001 (WCPFC/PrepCon/WP.2, 25 April 2001) on the basis of the financial regulations of intergovernmental organizations world wide and taking into account the considerations identified in document WCPFC/PrepCon/BP.4.

2. The draft was considered in detail by Working Group I during its meetings at the fourth session of the Preparatory Conference (Nadi, Fiji, 5 – 9 May 2003). As a result of the discussions, the draft was substantively revised and re-issued as WCPFC/PrepCon/WP.1/Rev.1 on 25 August 2003.

3. The revised draft was subsequently taken up by Working Group I during its meetings at the fifth session of the Preparatory Conference (Rarotonga, Cook Islands, 29 September – 1 October 2003). The main issues of substance that were considered by WG.I included the fund to be established pursuant to article 30 of the Convention and how it would be financed, and a proposal to establish a standing committee on finance and administration. Following considerable discussion of these issues, a new Regulation 7 (Special Requirements Fund) was inserted into the Regulations. No further revisions were made to Regulation 3.8.

4. No formal discussion of the Financial Regulations took place at the sixth session of the Preparatory Conference (Bali, Indonesia, 19 – 23 April 2004), although a further revised text of the draft Regulations, taking into account the discussions at PrepCon V, was circulated to all delegations for comment under symbol WCPFC/PrepCon/CRP.1 (20 April 2004).

5. The present document is a formal re-issue of WCPFC/PrepCon/CRP.1 (with minor editorial revisions suggested by delegations) and represents the outcome of all discussions in WG.I on this issue to date. Subject to any further consideration by WG.I during the final session of the Preparatory Conference, it is proposed that the Preparatory Conference **recommend** the further revised draft Financial Regulations contained in the annex to the present document to the Commission for adoption at its first session.

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FURTHER REVISED DRAFT FINANCIAL REGULATIONS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN

Prepared by the Secretariat

REGULATION 1
APPLICABILITY

1.1 These Regulations shall govern the financial administration of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereinafter referred to as "the Commission") established under article 9 of the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (hereinafter referred to as "the Convention").

REGULATION 2
FINANCIAL YEAR

2.1 The financial year shall be for 12 months, commencing 1 January and ending 31 December, both dates inclusive.

REGULATION 3
THE BUDGET

3.1 A draft budget comprising estimates of receipts by the Commission from all sources and of expenditures by the Commission shall be prepared by the Executive Director for the ensuing year.

3.2 The draft budget shall be divided into parts, sections and, as appropriate, programme support. It shall be accompanied by such information, annexes and explanatory statements as may be requested by the Commission, including a statement on the main changes in comparison with the budget of the previous year, and such further annexes or statements as the Executive Director may deem necessary and useful. The Commission may establish guidelines as to the format which the draft budget is to be presented.

3.3 The draft budget shall be accompanied by details of the appropriations made for the previous year and the expenditure against those appropriations.

3.4 The draft budget shall include a statement of the significant financial implications for subsequent financial years in respect of any proposed work programmes presented in terms of administrative, recurrent and capital expenditure.

3.5 The draft budget shall include an item specifying the costs required to finance the travel and subsistence for one representative from each developing State Party to the Convention and, where appropriate, territories and possessions, to each meeting of the Commission and to meetings of relevant subsidiary bodies of the Commission.

3.6 The Executive Director shall submit the draft budget for the following year to all members of the Commission at least 60 days prior to the annual meeting of the Commission. At

the same time, and in the same form as the draft budget, the Executive Director shall prepare and submit to all members of the Commission a forecast budget for the subsequent financial year.

3.7 The draft budget and the forecast budget shall be presented in United States dollars.

3.8 At each annual meeting, the Commission shall decide upon its annual budget. The Commission may establish, for this purpose, a committee to provide advice and recommendations to the Commission on matters related to the budget, finance and administration of the Commission.

3.9 Supplementary budget proposals may be prepared by the Executive Director if exceptional circumstances make this necessary. Supplementary budget proposals shall be prepared in a form consistent with the approved budget. The provisions of these Regulations shall be applicable to the proposed supplementary budget to the extent possible.

REGULATION 4
APPROPRIATIONS

4.1 The appropriations adopted by the Commission shall constitute an authorization for the Executive Director to incur obligations and make payments for the purposes for which the appropriations were adopted and up to the amounts so voted.

4.2 Appropriations shall be available for obligation during the financial year to which they relate. Available funds remaining at the end of the financial year will be applied to the working capital fund.

4.3 The Executive Director may authorize the transfer of up to 10 per cent of appropriations between sub-items of an item. The Chairman of the Commission may authorize the Executive Director to make transfers of up to 10 per cent of appropriations between items. All such transfers must be reported by the Executive Director to the next annual meeting of the Commission.

4.4 There shall be established a working capital fund for the purpose of accommodating normal operating expenditures prior to receipt of assessments from members of the Commission and to accommodate extenuating circumstances, as approved by the Commission. The source of monies for the working capital fund shall be any surplus appropriations to the annual budget and, if necessary, any voluntary advances made by members of the Commission. Any such voluntary advances made by a member of the Commission will, at the request of that member, be credited towards the annual assessed contribution of that member. Income derived from investments of the working capital fund shall be credited to miscellaneous income.

4.5 The Executive Director may incur obligations against the working capital fund when such obligations are necessary for the continued effective functioning of the Commission, provided such obligations are restricted to administrative requirements of a continuing nature not exceeding the scale of such requirements as authorized in the budget of the current financial year, until assessments are received from members of the Commission.

4.6 The Executive Director may also enter into obligations for future financial periods when such obligations are for programme activities which have been approved by the Commission and are expected to continue beyond the end of the current financial year.

4.7 The Commission shall prescribe the conditions under which unforeseen and extraordinary expenses may be incurred.

4.8 The Executive Director shall prudently manage the appropriations, taking into account the availability of cash balances. The Executive Director shall be accountable to the Commission for the proper management of the financial resources in accordance with these Regulations.

REGULATION 5
PROVISION OF FUNDS

5.1 The funds of the Commission shall include:

(a) assessed contributions made by members of the Commission in accordance with article 18, paragraph 2, of the Convention;

(b) voluntary contributions made by members or other entities;

(c) the fund referred to in article 30, paragraph 3, of the Convention; and

(d) such other funds to which the Commission may become entitled or may receive, including income from investments.

5.2 Each member of the Commission shall contribute to the budget in accordance with article 18, paragraph 2, of the Convention. Pending the receipt of such contributions, the appropriations may be financed from the working capital fund.

5.3 On approval of the budget for a financial year, the Executive Director shall send a copy thereof to all members of the Commission informing them of their contributions and requesting them to remit their contributions due.

5.4 Annual contributions shall be considered as due and payable in full within 60 days of the receipt of the communication of the Executive Director referred to in regulation 5.3 above, or as of the first day of the calendar year to which they relate, whichever is the later. As of 1 January of the following calendar year, the unpaid balance of such contributions and advances shall be considered to be one year in arrears. Interest shall be payable on such unpaid contributions at such rate as may be determined by the Commission.

5.5 Annual contributions shall be assessed and paid in United States dollars.

5.6 The Executive Director shall submit to each regular session of the Commission a report on the collection of annual assessed contributions from Members of the Commission, any voluntary contributions received, any investment income and other income received, and any advances made from the working capital fund.

5.7 Except in the first financial year, a new member of the Commission whose membership becomes effective during the first six months of the financial year shall be liable to pay the full amount of the annual contribution which would have been payable had it been a member of the Commission when assessments were made under article 18, paragraph 2, of the Convention. A new member whose membership becomes effective during the last six months of the financial year, shall be liable to pay half of the amount of the annual contribution referred to above. In the first financial year all members whose membership becomes effective during the first nine

months of the year shall be liable to pay the full amount of the annual contributions. A member whose membership becomes effective during the last three months of the first financial year shall be liable to pay half the amount of the first financial contribution.

REGULATION 6
FUNDS

6.1 (a) There shall be established a General Account for the purpose of accounting for the income and expenditure of the Commission;

(b) Contributions paid under Regulation 5.2, miscellaneous income and any advances made from the working capital fund to finance general administrative expenditure shall be credited to the General Account;

(c) Any cash surplus in the General Account at the close of a financial year that is not required to meet undischarged commitments will be credited to the working capital fund in accordance with Regulation 4;

(e) Advances made by members shall be carried over to the credit of the members which have made such advances.

6.2 Trust funds, reserve and special accounts may be established by the Executive Director and shall be reported to the Commission.

6.3 The purpose and limits of each trust fund, reserve and special account shall be clearly defined by the Commission. Unless otherwise provided by the Commission, such funds and accounts shall be administered in accordance with the present Regulations.

REGULATION 7
SPECIAL REQUIREMENTS FUND

7.1 A special requirements fund shall be established for the purposes identified in article 30 of the Convention, including:

(a) assisting developing States Parties, small island developing State members of the Commission and, where appropriate, territories and possessions, with human resources development, technical assistance and transfer of technology in relation to conservation and management of highly migratory fish stocks in the Convention Area and development of fisheries for such stocks; and

(c) building capacity for activities in key areas such as effective exercise of flag State responsibilities, monitoring, control and surveillance, data collection and scientific research relevant to highly migratory fish stocks on a national and/or regional level.

7.2 The special requirements fund shall be financed from voluntary contributions and such other sources as the Commission may identify. The fund will be administered by the Executive Director, in accordance with the same financial controls as regular budget appropriations.

7.3 The Executive Director shall establish a process for notifying the members of the Commission annually of the level of available funds in the special requirements fund, which shall include a timeline and a format for the submission of applications for assistance.

7.4 In accordance with the provisions of article 30, paragraph 4, of the Convention, developing States Parties, particularly small island developing States and, where appropriate, territories and possessions, will be eligible to receive assistance from the special requirements fund.

7.5 Those eligible, in accordance with Regulation 7.4, may submit an application for assistance from the fund. An application may also be submitted by an appropriate subregional or regional organization or arrangement on behalf of one or more of those eligible. Any application should specify how it relates to the purposes identified in Regulation 7.1 and include a description of the desired outputs of the project or expenditure and an itemization of anticipated costs.

7.6 The Commission shall consider the applications for assistance. The Commission shall be guided by the purposes of the fund, the provisions of the Convention, the financial needs of the applicant and the availability of funds, with priority given to small island developing States and, where appropriate, territories and possessions. Assistance shall be provided on an impartial basis. Consideration of applications shall also include an assessment of whether any existing sources of assistance are available. Decisions by the Commission on assistance from the fund shall take into account the size of the fund and the need for cost-effectiveness.

7.7 The Executive Director shall submit an annual report to the Commission on the status of the fund, including a financial statement of contributions to an disbursements from the fund. Recipients of assistance shall be required to provide to the Executive Director a report on the purpose and outcome of each approved project and a summary of expenditures.

REGULATION 8
OTHER INCOME

8.1 All income other than contributions to the budget under Regulation 5 and that referred to in Regulation 8.3 below, shall be classified as miscellaneous income and credited to the General Account. The use of miscellaneous income shall be subject to the same financial controls as activities financed from regular budget appropriations.

8.2 Voluntary contributions above and beyond assessed contributions may be accepted by the Executive Director provided that the purposes for which the contributions are made are consistent with the policies, aims and activities of the Commission. Voluntary contributions offered by non-members may be accepted, subject to agreement by the Commission that the purposes of the contribution are consistent with the policies, aims and activities of the Commission.

8.3 Voluntary contributions accepted for purposes specified by the donor shall be treated as trust or special funds under Regulations 6.2 and 6.3.

8.4 Moneys accepted in respect of which no purpose is specified shall be treated as miscellaneous income and reported as “gifts” in the accounts of the financial period.

REGULATION 9
CUSTODY AND INVESTMENT OF FUNDS

9.1 The Executive Director shall designate the bank or banks in which the funds of the Commission shall be kept and shall report the identity of the bank or banks so designated to the Commission.

9.2 (a) The Executive Director may make short-term investments of moneys not needed for the immediate requirements of the Commission. Such investments shall be restricted to securities and other investments issued under Government guarantee. The details of investment transactions and income derived shall be reported in the documents supporting the budget.

(b) With regard to moneys held in trust or special funds for which use is not required for at least 12 months, longer-term investments may be authorized by the Commission provided such action is consistent with the terms and conditions under which the moneys were lodged with the Commission.

REGULATION 10
INTERNAL CONTROL

10.1 The Executive Director shall:

(a) establish detailed financial rules and procedures to ensure effective financial administration and the exercise of economy in the use of funds These rules and procedures shall be brought to the Commission for its consideration;

(b) cause all payments to be made on the basis of supporting vouchers and other documents which ensure that the goods or services have been received and that payment has not previously been made;

(c) designate the officers who may receive moneys, incur obligations and make payments on behalf of the Commission;

(d) maintain and be responsible for internal financial control to ensure:

(i) the regularity of the receipt, custody and disposal of all funds and other financial resources of the Commission;
(ii) the conformity of obligations and expenditures with the appropriations adopted by the Commission, or with the purposes and rules relating to trust and special funds; and

(e) make every effort in the course of custodial and investment activity to avoid excessive transaction cost, minimize default and exchange rate risks and otherwise secure the economic use of the resources of the Commission.

10.2 No obligations shall be incurred until allotments or other appropriate authorizations have been made in writing under the authority of the Executive Director.

10.3 The Executive Director may make such ex gratia payments as he or she deems to be necessary in the interest of the Commission, provided that a statement of such payments shall be submitted to the Commission with the accounts.

10.4 The Executive Director may, after full investigation, authorize the writing-off of losses of cash, stores and other assets, provided that a statement of all such amounts written off shall be submitted to the Auditor with the accounts together with the justifications attached thereto. Such losses shall be included in the annual accounts.

10.5 Substantial purchases of equipment, supplies and other requirements as specified in the detailed financial rules and procedures shall normally be by tender, except:

(a) where it has been ascertained that only a single supplier exists and that fact is so certified by the Executive Director;

(b) in case of emergency, or where, for any other reason, these rules would not be in the best financial interests of the Commission and that fact is so certified by the Executive Director.

REGULATION 11
THE ACCOUNTS

11.1 The Executive Director shall ensure that appropriate records and accounts are kept of the transactions and affairs of the Commission and shall do all things necessary to ensure that all payments out of the Commission's moneys are correctly made and properly authorized and that adequate control is maintained over the assets of, or in the custody of, the Commission and over the incurring of liabilities by the Commission.

11.2 The Executive Director shall submit annual financial statements. The annual financial statements shall show, for the financial year to which they relate:

(a) the income and expenditure relating to all funds and accounts;

(b) the situation with regard to budget appropriations, including:

(i) the original budget appropriations;
(ii) the approved expenditure under or in excess of the original budget appropriations;
(iii) any other income;
(iv) the amounts charged against these appropriations and other income;

(c) the financial assets and liabilities of the Commission;

(d) investments;

(e) losses of assets proposed in accordance with Regulation 9.4.

The Executive Director shall also give such other information as may be appropriate to indicate the financial position of the Commission.

11.3 The accounts of the Commission shall be presented in United States dollars. Accounting records may, however, be kept in such currency or currencies as the Executive Director may deem necessary.

11.4 Appropriate separate accounts shall be kept for all special, reserve and trust funds.

11.5 The annual financial statements shall be submitted by the Executive Director to the Auditor not later than 31 March following the end of the financial year.

REGULATION 12
EXTERNAL AUDIT

12.1 The Commission shall appoint an external auditor who shall be the Auditor-General or equivalent statutory authority from a member of the Commission or an internationally recognized independent auditor with experience in the audit of international organizations. The Auditor shall be appointed for a period of two years and may be reappointed. The Commission will ensure respect for the Auditor's independence of the Commission, any subsidiary bodies established under the Convention and the Commission's staff, and shall make provision for appropriate funds to the Auditor.

12.2 The Auditor shall be completely independent and solely responsible for the conduct of the audit.

12.3 The Auditor or a person or persons authorized by him or her shall be entitled at all reasonable times to full and free access to all accounts and records of the Commission relating directly or indirectly to the receipt or payment of moneys by the Commission or to the acquisition, receipt, custody or disposal of assets by the Commission and may make copies of or take extracts from any such accounts or records.

12.4 The Auditor shall conduct his or her examination of the financial statements in conformity with generally accepted auditing standards and shall report on all relevant matters, including:

(a) whether, in his or her opinion, the statements are based on proper accounts and records;

(b) whether the statements are in agreement with the accounts and the records;

(c) whether, in his or her opinion, the income, expenditure and investment of moneys and the acquisition and disposal of assets by the Commission during the year have been in accordance with these Regulations; and

(d) observations with respect to the efficiency and economy of the financial procedures and conduct of business, the accounting system, internal financial controls and the administration and management of the Commission.

12.5 The Executive Director shall provide the Auditor with the facilities he or she may require in the performance of the audit.

12.6 The Auditor shall, within 90 days of the date upon which the annual financial statements are submitted by the Executive Director, issue a report on the audit of the financial statements and relevant schedules relating to the accounts for the financial period, which shall include such information as the Auditor deems necessary with regard to matters referred to in Regulation 12.4 as appropriate. The Executive Director shall provide to the Commission a copy of the audit report and the audited financial statements within 30 days of their receipt.

12.7 The Commission may request the Auditor to perform certain specific examinations and issue separate reports on the results.

REGULATION 13
ACCEPTANCE OF ANNUAL FINANCIAL STATEMENTS

13.1 The Commission shall, following consideration of the audited annual financial statements and audit report submitted to it under Regulation 12.6 of these Regulations, signify its acceptance of the audited annual financial statements or take such other action as it may consider appropriate.

REGULATION 14
INSURANCE

14.1 The Commission may take out suitable insurance with a reputable financial institution against normal risks to its assets.

REGULATION 15
GENERAL PROVISION

15.1 These Regulations shall become effective on the date they are approved by the Commission and shall apply to the financial year 200.. and to subsequent financial periods. Subject to the provisions of the Convention, these Regulations may be amended by the Commission in accordance with the Rules of Procedure.

15.2 Where the Commission or any of its subsidiary bodies is considering matters which may lead to a decision which has significant financial or administrative implications, it shall have before it an evaluation of those implications from the Executive Director.

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WCPFC Preparatory Conference
Second session
Madang, Papua New Guinea
25 February – 1 March 2002

WCPFC/PrepCon/WP.3
13 February 2002

WORKING GROUP I

SERVICE NEEDS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN AND OPTIONS AND SECRETARIAT STRUCTURES FOR THE DELIVERY OF SUCH SERVICES

Report by the Secretariat

SERVICE NEEDS OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC OCEAN AND OPTIONS AND SECRETARIAT STRUCTURES FOR THE DELIVERY OF SUCH SERVICES

I. INTRODUCTION

1. During the first session of the Preparatory Conference (PrepCon 1) in April 2001, WG. I (the working group on organizational structure, budget and financial contributions) identified a number of possible service needs for the future WCPFC.[1] This paper addresses the possible options for the delivery of those services to the Commission and then goes on to propose a possible Secretariat structure.

2. In addition to drawing upon the discussion at the first Session of the Preparatory Conference account has been taken of the discussions during the MHLC[2] (particularly the discussions within the working group at MHLC 6 based upon the working paper MHLC4/INF.2/Corr.1) and the provisions of the WCPFC Convention.[3]

3. While Working Group I (hereinafter referred to as WG.I) identified a number of service needs for the Commission (a list of approximately 26 items) it recognised that the list was not exhaustive and was dynamic in nature. Not all of the services identified at the Working Group will necessarily be provided or required in the initial years of the Commission or may be required to varying levels. In this regard the later sections of this paper dealing with the structure of the Commission Secretariat assumes that the functions of the Secretariat are based upon a more limited scope of Commission services while recognising that the Commission will over time undertake or require the provision of an increasing number of services.

4. Included, as an annex to the paper is an overview of the approaches taken by other fisheries Commissions in the delivery of the identified services, to the extent that the Commission concerned may require them.

II. SERVICE NEEDS OF THE COMMISSION.

5. The possible needs identified by WG. I are as follows:

(a) Secretariat functions/services

(b) Scientific advice and information.

(c) Compliance services.

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[1] WCPFC: - The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean.

[2] MHLC: - the Multilateral High-Level Conference on the conservation and management of highly migratory fish stocks in the western and central Pacific.

[3] The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, September 5 2000.

(d) Implementation of the Convention provisions on the effective participation and special requirements of small island developing States.

(e) Operation of the regional Observer programme.

(f) Cooperation with other organizations.

(g) External communications and publicity of Commission decisions and rulings.

(h) Commission's participation in the dispute settlement procedures.

A copy of the detailed list of items identified by WG. I during PrepCon 1 is attached at Annex 1.

III. OPTIONS FOR DELIVERY OF COMMISSION SERVICE NEEDS

(a) Secretariat functions/services:

6. In addition to the items identified by WG. I the Convention also prescribes a number of functions, Article 15(4) outlines the functions, to be undertaken by the Commission. The nature of the functions listed in Article 15(4) and the services identified by WG. I suggest some form of secretariat is required to deliver these services to the Commission.

7. During discussions in the MHLC process and at PrepCon1 it has been generally accepted that a dedicated Commission Secretariat is an appropriate approach to the delivery of secretariat services to the Commission.

8. The establishment of a Commission secretariat is similar to the approach taken by all the main fisheries Commissions currently in existence. It is consistent with the other tuna management organizations that currently operate in the Pacific region, namely the IATTC and the Commission for the Conservation of Southern Bluefin Tuna.

9. The WCPFC will have responsibility for one of the largest and most valuable set of tuna resources in the world. It covers a large geographic area, a number of different fisheries and fleet types and a potentially large and varied membership consisting of large and small, developed and developing countries. While the new Commission will be fortunate in that many of the fisheries in the Convention Area are considered to be in a healthy state there are and will be a significant number of management issues that will need to be addressed. The large scale of the fisheries and varied nature of membership will place extensive demands upon secretariat services to assist members in ensuring effective cooperation and in turn effective conservation and management.

10. Unlike many Commissions the WCPFC has had a number of functions delegated to it under the Convention. These will require some degree of secretariat function in order to ensure the delivery of the services on behalf of the Commission.

11. The Convention's inclusion of functions such as the vessel register, the Commission satellite vessel monitoring system and the regional observer programme as specified functions of the Commission creates a situation where some form of permanent Commission Secretariat is appropriate.

(b) Scientific advice and information.

12. It is not possible to detail the options or provide advice with respect to the provision of these services until such time as Working Group II reaches some agreement on the science needs of the Commission and then the possible options for providing for such needs. Working Group II is due to consider a Secretariat paper on this matter during the second session of the PrepCon.

13. Regardless of the final decision by Working Group II on science needs it is appropriate for WG. I to make some provision for at least some secretariat function to support the provision of science services.

14. As a minimum it is likely that any Secretariat structure will need to include a position which is either responsible for managing the contracts with external service providers for the provision of science services, or directly undertake the provision of these services within the Secretariat with additional technical staff within the secretariat as may be required. The same is also true for fisheries and biological data and the data management services of the Commission.

(c) Compliance services.

15. During PrepCon 1 the Working Group identified a number of sub-items required under the general heading of compliance services. Those sub-items are as follows:

(a) catch and effort verification systems;

(b) establishment, maintenance and administration of vessel registers;

(c) development of boarding and inspection rules and procedures;

(d) VMS;

(e) regulation of transhipment;

(f) monitoring of infringement actions;

(g) coordination of cooperative arrangements between the members; and

(h) development and coordination of specific compliance measure to support conservation and management measures

16. For some of the sub-items identified (sub-items (c), (e), (f), (g), and (h)) these are matters that in the first instance should most appropriately be developed by negotiation within the Commission and its subsidiary bodies such as the Technical and Compliance Committee.

17. Where there is a need for the Secretariat to develop technical papers to support the development of schemes, procedures or regulations as envisaged in sub-items (c), (e), and (h) in paragraph 15 and the necessary expertise does not exist within the secretariat then it would be appropriate for such services to be provided by way of consultancy from an external expert. Consistent with the approach of most fisheries commissions the Commission's budget should make allowance for the contracting of such expert technical advice as required.

18. There will be services associated with the effective functioning of any compliance systems once adopted by the Commission. Any Commission Secretariat is likely to be required to provide for the receipt of information and dissemination of such information to the Commission members. Assuming an approach similar to that taken by Commissions such as CCAMLR, NAFO and NEAFC these functions should be possible to provide within a modest

Secretariat structure and within the existing Secretariat functions identified in Article 15 (4) of the Convention.

19. It is assumed that the sub-item "Coordination of cooperative arrangements" includes arrangements that are not envisaged as being included as part of the current Convention provisions on boarding and inspection. Until further discussion has occurred as to the nature of such services it is not possible to provide advice on this item.

Commission Vessel Register

20. Article 24 of the Convention requires that members maintain a record of vessels authorised to fish in the Convention Area and goes on to require that the information as set in Annex IV of the Convention be provided to the Commission annually or when alterations occur.

21. The Commission is required under Article 24(7) to maintain a record of the information provided from members in accordance with Article 24 and Annex IV and to circulate this information periodically to all members or on request individually to any member.

22. Many fisheries Commissions operate Commission vessel registers, IATTC has recently introduced a Commission register for the vessels authorised to fish in the Eastern Pacific Ocean. From the perspective of a Commission secretariat the operation of such a register is unlikely to require any significant additional resources in terms of Secretariat structure. Once the database is established it is a relatively easy task for the Secretariat to receive and circulate information relating to the register.

23. A commission operated vessel register would be unlikely, on its own, to generate a need for significant Secretariat resources but there will be budgetary implications in establishing the database to support the register.

24. Article 15(5) dealing with Secretariat functions highlights the need to maintain cost effectiveness in any Secretariat structures and so it is appropriate to consider the capacity of existing regional organisations to perform certain technical functions. The provision of the Commission's vessel register can be considered to be a technical secretariat function. Further, consistent with an aim of minimising costs to the members of the Commission and considering the budget implications of creating a new Commission register it is appropriate to consider the possibility of the Commission obtaining this technical function from an existing organisation with the capacity to perform the service.

25. The Forum Fisheries Agency (FFA) currently operates a vessel register for those foreign fishing vessels licensed to fish in the EEZ jurisdictions of its member States. If issues associated with confidentiality of data can be addressed and there are clear cost savings it may be appropriate to use the existing database infrastructure associated with the FFA Regional register to collate and manage the registry data that the new Commission is required to maintain.

26. If the FFA system hardware were used to manage the Commission's vessel register such an approach would not involve using the FFA register as the Commission's register. The Commission database would not subsume or replace the FFA system but rather it may be possible for the two databases to be operated side by side on the same hardware.

27. If the capacity does not exist to utilise capacity within the FFA registry system without significant costs then clearly the most appropriate mechanism to supply the Commission's vessel register is for the database to be established within the Commission Secretariat. As previously

noted there would be limited impact upon the Secretariat structure if the database were established within the Secretariat.

Commission satellite Vessel Monitoring System (VMS)

28. Article 24 (8) of the Convention requires that the Commission shall operate a VMS for all vessels that fish for highly migratory fish stocks on the high seas in the Convention area.

29. While a number of Commission's require the operation of VMS upon vessels operating in their regulatory areas there are as yet few that require that this information be provided directly to the Commission.

30. NEAFC has in part moved in this direction by requiring that the information received by NEAFC members from the VMS replace the previous "Hail" system obligations of the members in respect to their vessels. In effect members now transfer on a "near real time" basis to the NEAFC Secretariat (and in some cases the information is sent simultaneous to the Secretariat from the vessel) VMS reports from their vessels while they are operating in the Commission regulatory area. These reports include those relating to entry, exit, and while fishing in the Commission's regulatory area position reports (once every six hours) and catch reports. The NEAFC Secretariat uses this information to inform members with surveillance and inspection vessels and aircraft in the area of vessel positions.

31. NAFO, while not moving quite as far as the NEAFC Commission in the use of VMS to replace its Hail system has provided for vessels operating VMS to replace Hail reports with reports from their VMS. As with NEAFC this information is circulated by the Secretariat to those Commission members that have surveillance or inspection resources in the area.

Commission Operated System.

32. This approach would be similar to that taken by NEAFC, although NEAFC relies on flag states receiving and forwarding the information the Secretariat is capable of receiving the information directly from the vessels. The NEAFC Secretariat has the capacity to analyse and set decision rules relating to the operation of the system that for example enable data to be automatically forwarded to the inspection vessel that may be closest to the vessels reporting under the system.

33. It is difficult to determine the Secretariat resources required to operate such a system in the absence of some detail on how the Commission intends to operate its VMS. Matters that will impact on the Secretariat resources may include the extent that the Secretariat will analyse the data received and perhaps perform a role similar to that of the NEAFC and NAFO Secretariats, namely, providing information from the Commission VMS to assist in the coordination of surveillance and inspection resources in the Convention Area.

34. Using the NEAFC Secretariat as an example, it is unlikely that substantive additional Secretariat structure will be required to support the system if the Commission adopts an approach that requires the Secretariat to operate the system itself, including a degree of analysis and decisions. NEAFC operates with a Secretariat of three staff and within this structure maintains a Commission VMS that while not the same in requiring direct transmission of data to the Secretariat is possibly not dissimilar to the scope of the system envisaged initially for the WCPFC.

35. While this approach may not require significant cost with respect to the Secretariat structure it is likely to have significant development and establishment costs associated with building a new Commission system. While not directly related to the issue of Secretariat functions and possible structure it is mentioned as it does relate to the overall issue of the Commissions budget.

Use of Existing Regional systems.

36. Article 24 (10) of the Convention requires that members cooperate to ensure compatibility between the systems operated in national waters and that on the high seas. Further, Article 15(5) dealing with Secretariat functions highlights the need to maintain cost effectiveness in any Secretariat structures and to this end account should be taken of the capacity of existing regional organisations to perform certain technical functions.

37. The provision of the Commission's VMS can be considered to be a technical secretariat function. Consistent with an aim of minimising costs to the members of the Commission it is appropriate to consider the possibility of the Commission obtaining this technical function from an existing organisation with the capacity to perform the service.

38. There is already a regional vessel monitoring system in operation in the Convention Area. That is the system operated by the members of the Forum Fisheries Agency.

39. Currently 1000 vessels are on the Forum Fisheries Agency (FFA) VMS. These vessels operate under licensing arrangement in the EEZ jurisdictions of FFA member States. Many of the 1000 vessels on the FFA system also operate on the high seas areas of the Convention Area and, to the extent that their flag States become members of the Commission, will be required to operate a Commission VMS in future.

40. The FFA system is currently operated on the basis of cost recovery from the vessels involved with a fee per vessel in the order of US$850 per year. Preliminary discussions with FFA Secretariat staff indicate that there may be the potential for additional vessels to be added to the system if necessary to fulfil any Commission request and that this could be achieved at a modest incremental cost. This indication of capacity and possible costs is dependent upon the number of additional vessels involved and the requirements (primarily the number of position reports required from vessels on a daily basis) established by the Commission.

41. Based upon compatibility of measures and avoidance, to the extent possible, of duplication there would appear to be a compelling case for the Commission to consider designating the FFA, under Article 24(8), to provide the technical function associated with the Commission's satellite vessel monitoring system.

42. The use of an existing organisation such as the FFA to provide a technical service such as the Commission's VMS, would not be without some difficulty. The type of date concerned, VMS, is one that is extremely sensitive to most flag States and issues relating to confidentiality of data will need to be carefully addressed. In addition the contractual relationship between the Commission and FFA will need to be clearly defined.

(d) Implementation of the Convention provisions on the effective participation and special requirements of small island developing States.

43. This service need, as identified by WG. I, includes two sub-items:

(i) establishment, maintenance and administration of a special fund for effective participation; and

(ii) mechanisms for capacity building consistent with article 30(4) of the Convention.

44. The first of these sub-items is already provided for within the general secretariat administrative functions identified by the Working Group and also included in the Convention under Article 15(4)(f). It is, therefore, not discussed any further under this heading other than to note that it is a service that the Secretariat is required to undertake in accordance with the provisions of Article 15 and 18 of the Convention. The secretariat structure proposed at MHLC 6 and PrepCon1 would be sufficient to ensure delivery of this service.

45. With respect to the second sub-item that relates to capacity building it is not possible at this stage to clearly identify the issues associated with this item. Further discussion by the Preparatory Conference or the new Commission of the expectations and limitations under this item of the Convention will be required.

(e) Operation of the Regional Observer Programme.

46. The Convention is quite specific in its provisions relating to the use of a regional observer programme. Article 28 of the Convention requires a regional observer programme that has the following characteristics:

- Organised in a flexible manner and may be undertaken on a contractual basis.
- Coordinated with existing regional, sub-regional and national observer programmes to avoid duplication.
- Consist of independent and impartial observers authorised by the Secretariat.
- Training and certification will occur in accordance with uniform procedures.

47. Commissions such as the CCSBT, IOTC, ICCAT and NEAFC rely upon voluntary provision of observer data from national observer programmes. NAFO while prescribing certain standards and requirements that are to be met by the observer coverage undertaken under the Commission still relies upon the use of observers from the national programmes of the flag states involved. CCAMLR operates a scheme of international observers that requires that vessels carry observers provided by a member of the Commission other than the flag State of the vessel involved.

48. The Convention stipulates in Article 28 that the Commission shall develop a regional observer programme but does not stipulate that the Commission must run the programme. In fact Article 28(2) of the Convention explicitly provides for the contracting out of the programme if considered appropriate by the Commission.

49. There is no one approach taken by the various regional fisheries management organizations currently operating Commission regional observer schemes or programmes.

50. The following options are drawn from the schemes or programmes of CCAMLR and the IATTC and the provisions of the Convention.

Member Observers on the vessels of other members in accordance with Commission guidelines (CCAMLR approach)

51. The CCAMLR approach involves the development of a Commission scheme that prescribes that Commission observers must be from a member of the Commission other than the member upon whose vessel the observer is operating.

52. Members of the Commission enter into bilateral arrangements in accordance with the Scheme to provide for the provision of "international" observers on their vessels. The CCAMLR scheme details the minimum requirements of the bilateral arrangements that the member states enter into to govern the exchange of observers. It includes many of the requirements and details already covered in Article 28 of the WCPFC Convention. It also provides details on how costs will be recovered but allows for members to agree alternative approaches to the apportionment and recovery of costs.

53. There is no direct cost to the Commission associated with the placement of the observers.

54. The Commission or its Secretariat do not become involved in the arrangements between members concerning provision and placement of observers. The Commission simply stipulates the level of observer coverage in a fishery and members then determine for themselves how this is implemented with respect to their fleets.

55. Taking a similar approach to that of CCAMLR would see the Secretariat take an active role with respect to the data collection by observers and in this role the Secretariat produces observer manuals and data sheets that are to be used in collecting data under the Scheme.

56. This option does not involve the Secretariat in the training, equipping and placement of observers. Rather these functions and the costs associated with them are borne by the national observer programmes providing the observers.

57. A possible disadvantage of this approach may be the reliance upon bilaterally agreed arrangements for the recovery of costs associated with the placement of observers. For some members this may result in them bearing an inequitable burden of the cost of observer coverage. A possible solution to this problem would be for the Commission to simply establish the principle within the scheme that as a minimum the provider of observers is able to recover the costs associated with the observer, namely cost associated with training, clothing, equipment, salary and allowances, and any travel costs.

Commission observers

58. This approach is similar to that taken by the IATTC. The Commission employs and trains the observers in the programme and places the observers as necessary on vessels fishing in the Convention Area.

59. If operated by the Commission this approach requires a more extensive secretariat structure associated with the training, coordination, placement and management of the programme. The IATTC programme employs 135 observers that cover the 135 vessels involved in the scheme (the IATTC programme is providing observer coverage to the International Dolphin Conservation Program which requires 100% observer coverage of purse seine vessels).

60. In the case of the IATTC programme a percentage of observer coverage is funded from within the Commission budget based upon members assessed contributions while the remainder of the programme is funded by a levy charged to any vessel that requires observer coverage. At present that fee is an annual fee of approximately US$12.50 per cubic metre of fish well space (the programme is limited to purse seine vessels). For a 1000 cubic metre vessel this equates to an annual fee of approximately US$12,500.

Use of existing observer programmes.

61. An alternative to the Commission assuming all responsibilities and costs associated with the running of a major observer programme is for the Commission to utilise an existing programme.

62. This option would seek to build upon existing regional or sub-regional programmes and utilise the expertise, skills and infrastructure within those programmes to reduce cost.

63. There are two existing sub-regional observer programmes operating within the Convention Area and which incorporate coverage on the high seas and various EEZ jurisdictions. The programmes are associated with the US-Pacific States Tuna Treaty and the Federated States of Micronesia Agreement both of which are administered by the FFA Secretariat. Both programmes provide observers to purse seine vessels. In the case of the programme under the US-Pacific States Tuna Treaty coverage includes both the high seas and the EEZ jurisdiction of the Pacific Island Treaty partners.

64. The Commission regional observer programme coverage includes vessels fishing on the high seas and vessels fishing in two or more coastal States in the Convention Area. As such all the vessels currently subject to the existing sub-regional observers programmes are potentially required to carry Commission observers.

65. Article 28(6)(f) of the Convention requires that the Commission's regional observer programme avoid duplication with exiting regional, sub-regional and national programmes. On this basis the use of the existing sub-regional programmes would be an appropriate approach should the Commission choose to use Commission observers rather than a CCAMLR-style approach of member observers organised within a Commission scheme.

Hybrid Approach

66. This approach would incorporate components of the CCAMLR approach and the use of existing sub-regional observer programmes.

67. Under this approach commission members would be free to choose the source of observers from either the national observer programmes of other members, CCAMLR's approach, or from the existing sub-regional programmes. Regardless of the source of observers the programme would be governed by a scheme similar to the approach adopted by CCAMLR. The vessels that currently carry sub-regional observers (the US purse seine vessels under the US-Pacific States tuna treaty) could continue to use these observers to fulfil Commission observer requirements. It is conceivable that the existing sub-regional observer programme may even offer its expertise and observers to Commission members other than those it has covered to date so increasing the choose for those seeking observer coverage.

68. As with the CCAMLR approach, discussed in paragraphs 52 to 58 above, this approach would incur few costs to the Commission with respect to Secretariat resources. The major costs,

which occur regardless of the options chosen, will be the preparation and printing of standardised reporting forms and procedures and manuals.

69. On the basis of flexibility and minimisation of cost to the Commission it is proposed that this hybrid approach provides the best option for providing for the Commission's need for a regional observer programme.

(f) Cooperation with other organizations.

70. As with most fisheries commission's there will be a need to cooperate with other organizations and as is the case in most other bodies decisions on the most appropriate means of cooperation should be taken on a case by case basis. However, it can be observed from the approach of the other organizations that there are occasions where the attendance of technical staff from the Commission Secretariat is the most appropriate form of cooperation and therefore some provision for such activity should be made in the budget item associated with duty travel of the Secretariat.

71. As in other Commissions much of the cooperation with other organizations can be achieved through the participation of Commission members who act as observers on behalf of the particular Commission. For example, organizations such as CCAMLR[4] or CCSBT[5] regularly rely upon nominated members, who are normally also members of the other organization concerned, to represent the Commission at the meetings of other organizations at no cost to the Commission. In the case of CCAMLR the CCSBT would normally nominate Australia, Japan, or New Zealand (all of whom are also members of CCAMLR) to represent the Commission at CCAMLR meetings.

(g) External communications and publicity of Commission decisions and rulings.

72. This function already exists as a prescribed function of any Commission secretariat. Article 15(4)(e) of the Convention requires that a function of the secretariat shall be:

> *" publishing the decisions of and promoting the activities of the Commission and its subsidiary bodies; and*"

73. As a prescribed function under the Commission it is clear that the Secretariat is required to provide for such a service.

74. It should be noted that all the major regional fisheries organisations now operate web sites to convey information about their activities and decision to the public. Increasingly many of fisheries Commission's use their websites to also provide more detailed information to Commission members (usually via a secure, password protected, component of the website). CCAMLR, for example, has an extensive website with varying levels of security for access to different types of information. CCAMLR Commission members are able to access Commission documents, working papers, certain types of Commission circulars, data with respect to the Commission's catch documentation scheme, and other data on the basis of specified users and appropriate password protection.

75. A secretariat structure similar to those presented previously at MHLC6 and PrepCon1 should be capable of providing for such services including web site services.

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[4] Commission for the Conservation of Antarctic Marine Living Resources
[5] Commission for the Conservation of Southern Bluefin Tuna

(h) Commission's participation in the dispute settlement procedures

76. The extent of the Commission's participation in any dispute is likely to be limited to that of providing factual information and possibly technical support as necessary. On this basis it is likely that these services can be provided within the secretariat functions of the Commission as envisaged within Article 15 of the Convention.

IV. CONCLUSION AND PROPOSED SECRETARIAT STRUCTURE

77. There are clear benefits for a new Commission with the diversity of membership, scale of fisheries, diversity of fishing interest and size of geographic area of coverage of the WCPFC in having a dedicated Commission Secretariat.

78. It is proposed that an appropriate approach for the Preparatory Conference would be to endorse the need for the WCPFC to have a dedicated Secretariat to provide for the provision of services to the Commission.

79. While WG. I has identified a number of services required by the Commission the level to which these services may be required by the Commission in the early years of its establishment are not clear.

80. There are three service items that the decisions of the Conference on how such service items will be provided will have a significant impact upon the Secretariat structure. Those items are scientific services, the Commission VMS and the regional observer programme.

81. If the Conference accepts that these services (Science, Commission VMS and a Commission observer programme) can be provided on the basis of arrangements with existing regional organisations then the following Secretariat structure should be sufficient for the early years of the Commission. If the data needs and science requirements of the Commission become more complex overtime then this may require an expanded Secretariat structure, for example specialist contract administrators.

82. Working Group II has still to determine the science and data needs of the Commission and how these should be delivered. The decisions of Working Group II have potential to significantly alter the Secretariat structure outlined below.

83. The proposed Secretariat structure to support the Commission's service needs is:

Executive Director
Internationally-recruited professional staff
Technical analyst (Compliance manager)
Technical analyst (Science manager)[6]
Technical analyst (Data manager)[7]
Finance and administration officer
Information technology officer
Staff recruited at locality rates
Treasury assistant
Secretarial assistant x2
Administrative assistant x2
Security officer
Driver
Total staff: 13

84. While the actual roles and functions of each position will need to be further developed as WG.I develops a better understanding of the exact nature of the functions that the secretariat is to undertake, some general comments on the functions of the certain positions can be made at this time.

85. The compliance manager, science manager and data manager will be responsible for the ongoing management of the compliance, science and data services of the Commission. In addition to providing technical advice to the Commission they will also assist in the development of performance standards for any contracted supply of technical services within their areas.

86. On the basis that the Commission does not establish its own observer programme the science or data manager will be responsible for the regional observer programme (in much the same way as the Science Officer of CCAMLR) with support from an administrative assistant.

87. The Compliance manager will have overall responsibility for the Commission's VMS and vessel register and the dissemination of any data from those systems. The position will also be responsible for any coordination functions required by the Commission with respect to future regional compliance schemes. An administrative assistant will be required to support the Compliance Manager with respect to the data entry and regular administration of the Commission's vessel register if this service is managed within the Secretariat.

88. On the basis that the Commission will contract certain technical services the role of finance and administration officer takes on the additional function of contract management, with

[6] If the Commission chooses to establish scientific services within the Secretariat then the Science Manager will need to be assisted by suitably qualified scientific staff that will most likely be internationally recruited professional staff.

[7] As with science services if the Commission chooses to establish data services within the Secretariat then the Data Manager will need to be assisted by suitably qualified staff that may need to be internationally recruited professional staff.

technical assistance from each of the technical officers, for those technical services that the Commission may outsource.

89. A locally recruited position of Treasury Assistant has been created. This position would be responsible for recording contributions, processing payments and assisting the Finance and administration officer with respect to the monitoring of the budget.

90. The structure proposed should be sufficient to meet the Commission's service needs in the medium term provided that the use of external providers of certain technical secretariat functions is maximised. With the inclusion of two technical officers the Secretariat should be able to coordinate and manage the external provision of certain technical secretariat functions such as the regional observer programme, science services and the Commission VMS.

Annex I

List of Commission service items identified by Working Group I during PrepCon 1

(a) A Secretariat (initial functions to include the following):

(i) Receiving and transmitting the Commission's official communications

(ii) Preparing administrative and other reports for the Commission and its subsidiary bodies

(iii) Publishing the decisions of and promoting the activities of the Commission and its subsidiary bodies

(iv) Undertaking treasury, personnel and other administrative functions

(v) Organizing meetings of the Commission and its subsidiary bodies, including the northern committee.

(b) Scientific advice and information on:

(i) data collection and dissemination;

(ii) research;

(iii) status of stocks; and

(iv) other relevant matters.

(c) Compliance services including:

(i) catch and effort verification systems;

(ii) establishment, maintenance and administration of vessel registers;

(iii) development of boarding and inspection rules and procedures;

(iv) VMS;

(v) regulation of transhipment;

(vi) monitoring of infringement actions;

(vii) coordination of cooperative arrangements between the members; and

(viii) development and coordination of specific compliance measure to support conservation and management measures.

(d) Implementation of the Convention provisions on the effective participation and special requirements of small island developing States, including:

(i) establishment, maintenance and administration of a special fund for effective participation; and

(ii) mechanisms for capacity building consistent with article 30(4) of the

Convention.

(e) Observer programme.

(i) coordination of a regional observer programme with other regional, sub-regional and national observer programmes; and

(ii) operation of a regional observer programme.

(f) Cooperation with other organizations.

(i) conduct external relations of the Commission (Secretariat);

(ii) develop relationship agreements as appropriate (Secretariat, Commission);

(iii) coordination with international or regional donor or funding agencies.

(g) External communications and publicity of Commission decisions and rulings.

(h) Commission's participation in the dispute settlement procedures

Annex II

Approach taken by other Fisheries Commission's to the provision of Services.

	CCSBT	CCAMLR	IATTC	ICCAT	IOTC	NEAFC
Secretariat Services	Commission	Commission	Commission	Commission	Commission	Commission
Science	Members via Scientific Comm. and Working Groups.	Members via Scientific Comm. and Working Groups.	Commission Scientific Secretariat.	Members via Scientific Panels and Working Groups.	Members via Scientific Comm. and Working Groups.	External provider - ICES[8]
Compliance services[9]	Commission Secretariat	Commission Secretariat	Commission Secretariat	Commission Secretariat	Not currently applicable	Commission Secretariat
Vessel register	N/A	Commission Secretariat	Commission Secretariat	Not known	Not known	Commission Secretariat
VMS	N/A	Flag State systems.	N/A	N/A	N/A	Flag State systems which copy data to Commission system.
Assistance to developing States	N/A	N/A	N/A	N/A	N/A	N/A
Regional Observers	N/A	From members within Commission established procedures and scheme.	Commission observer Programme	Members' national programmes	N/A	Members' national programmes

In relation to the services, cooperation with other organizations, external communications and publicity, in all cases these are functions of the respective Commission Secretariats.

[8] ICES- International Council for the Exploration of the Sea. Provides scientific advice on the marine environment of the north Atlantic, in particular the northeast Atlantic.
[9] Excluding satellite based VMS, observers, and vessel registry.

WCPFC Preparatory Conference
Second session
Madang, Papua New Guinea
25 February – 1 March 2002

WCPFC/PrepCon/WP.4
13 February 2002

WORKING GROUP I

OPTIONS FOR FUNDING THE SERVICE NEEDS OF THE COMMISSION

Report by the Secretariat

OPTIONS FOR FUNDING THE SERVICE NEEDS OF THE COMMISSION

I. INTRODUCTION

1. Working Group I has requested that the Secretariat prepare a paper on funding options and budget structure to assist the working group in considering the matters associated with item (b) of the Group's Terms of Reference, namely:

> "*b. On the basis of identified service needs develop an appropriate budget structure and prepare financing options*; …"

2. The items, as identified by WG.I, to be provided for within a budget structure are as follows:

(a) Secretariat functions/services

(b) Scientific advice and information.

(c) Compliance services.

(d) Implementation of the Convention provisions on the effective participation and special requirements of small island developing States.

(e) Operation of the regional Observer programme.

(f) Cooperation with other organizations.

(g) External communications and publicity of Commission decisions and rulings.

(h) Commission's participation in the dispute settlement procedures

3. This paper outlines the provisions of the Convention with respect to the funds of the Commission and then discusses the main funding options available to the Commission for funding the identified service needs. Rather than dealing with the services on an individual basis the paper simply identifies those services that may appropriately be funded by the various funding options.

II. PROVISIONS OF THE CONVENTION

4. Section 5, Articles 17 and 18, of the Convention outline the general principles relating to the funds of the Commission and its annual budget.

5. According to Article 18(1) it is clear that the draft budget prepared by the Executive Director need not be limited to only those funds collected through assessed contributions. Article 18(1) requires that in developing the draft budget the Executive Director identifies which of the Commission's administrative expenses are to be financed by assessed contributions and which are to be financed from other sources of Commission revenue.

6. Income for the Commission may, as outlined in Article 17(1), be from the following sources:

(a) assessed contributions in accordance with article 18, paragraph 2;

(b) voluntary contributions;

(c) the fund referred to in article 30, paragraph 3; and

(d) any other funds which the Commission may receive.

7. Further to the general funding principles in Section 5 the Convention also makes reference in specific articles to funding associated with particular services. An example being Article 28(8), which provides for the Commission to determine the manner in which the costs associated with the observer programme will be defrayed.

8. It is, therefore, open to the Commission to decide the nature of the budget and the extent to which the financial regulations of the Commission will provide for the use of charging by the Commission for certain services.

III. OPTIONS FOR FUNDING BUDGET ITEMS

9. Historically fisheries commissions have relied upon assessed contributions to fund their budgets. More recently consideration is being given to the use of alternative funding mechanisms, primarily cost recovery or service fees. This move towards charging the users of particular services is an approach increasingly occurring within national administrations and to a lesser extent within some regional organisations.

10. For practical purposes there are two funding approaches that can be taken by the Commission. Those approaches are:

- A combination of assessed member contributions and cost recovery; or
- Assessed contributions only.

11. The following discussion focuses on these two approaches and identifies the Commission services that each approach may appropriately be applied to for funding.

12. Funding options associated with the provisions of Article 30(3) of the Convention, assistance to facilitate developing state participation in Commission meetings, are considered as a separate section of discussion.

Assessed Contributions

13. There are areas of the Commission's budget that will be most appropriately financed by all members of the Commission and therefore are best funded via assessed contributions. Those services/areas are:

- Administrative services, including Secretariat functions/services, cooperation with other organizations, external communications and publicity of Commission decisions and rulings, and the Commission's participation in

the dispute settlement procedures. (Items a, e, f and g of the services identified by the Working Group)

- Scientific advice and information.
- Data collection and management
- Compliance services, excluding VMS. .

14. A consideration in developing the formula for assessed contributions will be the extent to which the Commission accepts that cost recovery may be applied to areas of the Commission's budget where it may be appropriate.

15. If there are services that are primarily related to vessel activity but cost recovery of those services is not considered appropriate then an approach to ensure that non-fishing nations do not carry an undue burden for such costs would be appropriate. It may be appropriate under such circumstances for the variable fee component of the assessed contributions formula to form a greater percentage of the overall assessed contributions formula.

16. The Convention already gives guidance in Article 18(2) as to the broad nature of any assessed contributions formula. That is:

> "*… due consideration shall be given to each member being assessed an equal basic fee, a fee based upon national wealth, reflecting the state of development of the member concerned and its ability to pay, and a variable fee. The variable fee shall be based, inter alia, on the total catch taken within exclusive economic zones and in areas beyond national jurisdiction in the Convention Area of such species as may be specified by the Commission, provided that a discount factor shall be applied to the catch taken in the exclusive economic zone of a member of the Commission which is a developing State or territory by vessels flying the flag of that member*."

17. A number of fisheries commissions have adopted, or are in the process of adopting, funding formulae incorporating similar concepts to those outlined in Article 18(2) of the Convention. It is therefore recommended that the Working Group accept this approach as appropriate for the new WCPFC Commission.

Matters for Consideration regarding a formula for assessed contributions.

18. The question arises as to the nature of the funding formula and what weighting will be applied to each component of the formula.

19. While WG. I has not so far specifically requested advice on funding formula for assessed contributions some matters that the group may wish to consider in future discussions are outlined below.

20. Fundamental to any funding formula is the sustainability of the formula. All members of the Commission must be satisfied that the formula is equitable and able to take account of the changing circumstances of members over time. A number of fisheries commissions are currently in the process of reviewing their funding formula to better

reflect the current circumstances of the various members of the Commission. The members of IATTC for example have recognised that the funding formula of that organisation is no longer sustainable and have been in the process of negotiating a new formula for the last few years.

21. Discussions during the MHLC process centred on two options for the funding formula for assessed contributions. Those options were a 10/20/70 split or a 20/20/60 split of base payment/wealth payment/and production payment.

22. The approach presented by the Secretariat at MHLC 6 while not as complicated in its approach is not dissimilar to the scenarios that Commissions such as the IATTC and IOTC have considered and in the case of IOTC[1] adopted.

23. Discussion during the budget working group established at MHLC 6 highlighted a fairly high level of acceptance for the Secretariat's proposals but also emphasised the need to keep the basic or base payment contribution in any funding formula as low as possible. Noting this later point it is, therefore, suggested that the 10/20/70 split scenario proposed by the MHLC secretariat (refer to MHLC Conference document MHLC4/INF.2/Corr1) serve as an initial basis for further discussion by WG. I.

24. If the 10/20/70 funding scenario first presented at MHLC 6 is acceptable as a basis for further discussion some of the outstanding matters that need to be considered include:

- The weightings to be applied to the wealth payment component of the fee.[2]
- The appropriate discount factor to be applied to the catch taken by developing state members of the Commission within their own EEZ jurisdiction by vessels flying their flag.
- The extent to which account is made for the value of production in the variable fee component of the formula.

25. On the last point above, the value of catch in the variable fee component of the assessed contributions formula, there is considerable variation in the value of the

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[1] The IOTC funding formula is as follows:

- 10% of the total budget of the Commission shall be divided equally among all the Members.
- 10% of the total budget shall be divided equally among the Members having fishing operations in the Area targeting species covered by the Commission.
- 40% of the total budget shall be allocated among the Members on the basis of per caput GNP for the calendar year three years before the year to which the contributions relate, weighted according to the economic status of the Members in accordance with the World Bank classification as follows and subject to change in the classification thresholds: high income Members shall be weighted by the factor of 8; middle income Members by the factor of 2; low-income Members by the factor of 0.
- 40% of the total budget shall be allocated among the Members in proportion to their average catch in the three calendar years beginning with the year five years before the year to which the contributions relate, weighted by a coefficient reflecting their development status. The coefficient of OECD members and EC shall be 1, and the coefficient of other Members shall be one-fifth.

[2] As presented to MHLC 6 the wealth based component of the assessed contributions would be weighted according to three categories: low income members (GNP less than US$765); middle income members (GNP greater than US$766 but less than US$9,385); and high income members (GNP greater than US$9,386). The GNP data used at the time was for 1995. This approach is similar to that of the IOTC.

different fisheries operating in the region. A variable fee based purely upon the quantum of catch could see high volume lower value fisheries carrying a disproportionate burden of the budget. One option to avoid this may be to apply different weighting to the various fisheries. CCAMLR takes such an approach with respect to the calculation of its fishing based fee component of assessed contributions. Without going into the complexities of the CCAMLR formula, high volume low value fisheries such as krill are discounted as compared to lower volume but extremely high value toothfish fisheries. The Working Group may wish to consider the use of weighting on the basis of value for the component of assessed contributions that involves catch in the Convention Area.

Cost Recovery

26. Three areas of the Commission's budget are potential candidates for funding via cost recovery mechanisms rather than assessed contributions. The three areas are the technical services:

- The regional observer programme
- The Commission satellite vessel monitoring scheme (VMS)
- The Commission register of vessels

27. During the MHLC[3] process there was some discussion of the use of cost recovery to fund certain aspects of the Commission's budget. The discussions within the MHLC process did not rule out the possibility of using cost recovery as a means of funding certain Commission services.

28. Should the Working Group consider it appropriate to apply cost recovery to the services identified above then there are two options as to how the costs may be levied. They are to levy costs directly against operators using the services or to levy the costs against the members of the commission whose vessels use the services.

Levy Against Operators

29. Where there are regional examples of cost recovery being applied to the provision of services the recovery of costs is generally on the basis of a levy against vessel operators.

30. The Inter-American Tropical Tuna Commission (IATTC) provides observers to purse seine vessels seeking observer coverage pursuant to the International Dolphin Protection Program. Under the program vessels are required to have 100% observer coverage while fishing within the program area. IATTC recovers the cost of providing such observers from the vessel operators. An annual fee[4] is charged on the basis of the carrying capacity of the vessel.

31. On a sub-regional basis the Forum Fisheries Agency manages an observer programme associated with the US-Pacific States Tuna Treaty and again a cost recovery

[3] Multilateral High-Level Conference on the conservation and management of highly migratory fish stocks in the western and central Pacific.

[4] For a purse seine vessel with a carrying capacity of 1000 cubic metres the fee would be in the order of US$12,500 per annum.

process is applied for the funding of that service. Each vessel under the US-Pacific States observer programme is charged in the order of US$4,000.[5]

32. For a number of the vessels operating in the WCPFC Convention Area operators are already familiar with application of cost recovery for certain services. Vessels operating under licensed access agreements with FFA member countries are already required to pay for registration on the "FFA regional register" and an annual fee associated with the satellite vessel-monitoring scheme operated by the FFA member countries.

33. With a number of the vessels that will potentially be subject to the Commission's jurisdiction already familiar with the concept of payment for certain services the level of resistance by vessel operators to charges for services may be less than might otherwise be anticipated.

Levy Against Commission Members

34. Discussions at the sixth session of the MHLC generally centred on the recovery of costs via a fee for service charged directly to vessel operators. Another option may be to recover the costs from the Commission member concerned and allow national administrations to determine the extent to which those charges are passed on to vessel operators.

35. There are few, if any, examples where fisheries commissions have undertaken this approach. To some extent the CCAMLR Scheme of International Observation has been applied by some CCAMLR members in a manner similar to the concept of applying charges to individual members.

36. The CCAMLR[6] Scheme does not prescribe that costs shall be recovered from the Commission member whose vessels receive observers under the Scheme. In fact paragraph B (i) of the Scheme places the costs upon the member providing the observer unless otherwise agreed. That paragraph reads:

> *"(i) Unless otherwise agreed the equipment, clothing and salary and any related allowances of a scientific observer shall normally be borne by the Designating Member. The vessel of the Receiving Member shall bear the cost of on board accommodation and meals of the scientific observer.*"

37. Members of CCAMLR, however, are not under any obligation to provide observers under the Scheme so the provision of observers usually involves a process of negotiation on how costs may be apportioned. In an increasing number of cases this process of negotiation has resulted in the charging for the provision of observer services. Obligations for ensuring that charges are paid usually rest with the member whose vessels are receiving observers but increasingly this charge is being passed down to the vessel operator.

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[5] It should be noted that the US-Pacific States Tuna Treaty Observer Program seeks to achieve a level of observer coverage of approximately 25%. This lower level of coverage in part accounts for the difference in costs between this scheme and the IATTC scheme.

[6] Commission for the Conservation of Antarctic Marine Living Resources

Implication of the various options for provision of services to the recovery of costs

38. With respect to the recovery of costs associated with the regional observer programme the exact nature of the cost recovery process used may vary depending upon the style of the regional observer programme.

39. If the Conference, and subsequently the Commission, were to endorse the approach recommended in the Working Paper on Secretariat Structure, namely the use of existing sub regional observer schemes and observers provided from members of the Commission under bilateral arrangements negotiated within a Scheme similar to the CCAMLR Scheme, then there would be few costs for the Commission and its Secretariat. Instead the main costs of the programme (training, equipment, salaries, etc) are transferred to the members supplying observers. The costs that the Commission may continue to face may include coordination of the programme and the production of standardised reporting forms and training material. These costs are likely to be relatively small and cost recovery of these items alone would not be justified.

40. If the Commission does utilise an observer scheme similar to that recommended in the Working Paper on Secretariat Structure, the scheme should stipulate clearly the costs that the providers of observers can recover, as a minimum, from those members (or vessel operators) receiving the observers.

IV. SPECIAL FUND FOR FACILITATION OF DEVELOPING STATE PARTICIPATION

41. Article 30(3) of the Convention requires the Commission to establish a fund to facilitate the participation of developing states, particularly small island developing states, in the work of the Commission. No guidance is provided by the Convention as to the nature of the fund or as to how it should be funded within the Commission's budget.

42. There are potentially several options for funding the facilitation envisaged in Article 30(3). They include:

- Use of assessed contributions.
- Voluntary contributions.
- A small levy upon production in the Convention Area.

43. Discussions during the MHLC process were not able to resolve how any such fund should be financed. A number of participants at MHLC were of the view that the fund should be financed on the basis of voluntary contributions because the issue was related to matters of aid and assistance. Other Conference participants were clearly of the view that to rely solely upon voluntary contributions to finance such a fund would introduce too much uncertainty.

44. A matter that may be relevant in any determination on the use of assessed funds, voluntary contributions or a production levy to finance the assistance fund is the issue of whether the fund to be used in exceptional circumstances only or as a regular means of financing attendance by developing states.

45. If the fund is considered as a means of financing the regular attendance of developing states, and in particular small island developing states, to the meetings of the Commission then it may be appropriate to consider a more secure form of finance such as the use of assessed funds or a production based levy.

46. If the fund is to be used in exceptional circumstances, for example the Commission is required to hold an extraordinary session during the course of a year and for some developing states this is beyond their ability to finance, then the use of voluntary contributions may be sufficient to meet the needs of the fund.

V. CONCLUSIONS

47. There are a number of services that can potentially be funded from sources other than assessed contributions. Those services are the regional observer programme, the Commission VMS and the Commission's register of vessels. An early decision on the whether to use funding mechanisms such as cost recovery for these services, when they are required, will greatly assist in the further development of the first budget for the Commission.

48. The funding formula for assessed contributions developed and presented by the MHLC Secretariat at MHLC 6 (refer to MHLC4/INF.2/Corr1) continues to provide the best basis for continued discussions on the assessed contributions of members and the funding of that portion of the budget that is financed by these contributions. This funding formula is reproduced in Annex II.

49. Further consideration needs to be given to the nature of the fund under Article 30(3) in order to better determine the most appropriate form of funding. For the time being the assumption has been made that the fund will be financed via voluntary contributions.

50. A possible budget structure reflecting the discussion above is outlined in Annex 1.

Annex I

Possible budget structure

The budget structure below is based upon cost recovery being applied to the Commission services of the observer programme, VMS and the register of vessels.

Component	**Funding Source**
Secretariat and administration[7]	Assessed Contributions.
Scientific Services	Assessed Contributions.
Data Management	Assessed Contributions.
Compliance Services[8]	Assessed Contributions
VMS Operation	Activity based contributions[9]
Vessel Register	Activity based contributions
Observer Program	Activity based contributions[10]
Assistance to facilitate participation of developing States at commission meetings	Voluntary contributions and other income.
Special Funds	Voluntary Contributions from members and non-members

[7] This item would include staff costs, travel, meeting expenses, consultancy services (those other than specified contracted technical services of the Commission), purchase of capital assets, maintenance, entertainment, and general operating expenses such as printing, communications, electricity etc.
[8] May include items such as catch and effort verification systems, technical advice on development of boarding and inspection regimes and maintenance/coordination of any such scheme, and monitoring and dissemination reporting with respect to infringement actions
[9] Activity based contributions can be collected by the Commission either directly from vessel operators or from the Commission members of such vessels.
[10] The costs associated with the provision and placement of observers will be recovered by the members providing observers. The costs associated with the Secretariats role, primarily preparation of reporting forms and manuals, will be met by assessed contributions.

Annex II

Extract of funding formula from MHLC4/INF.2/Corr1 as presented by MHLC Secretariat to the MHLC process.

" It is proposed that the Commission adopt a three-tier structure of contributions for its members, …

10 (or 20) percent base payment contribution

In determining the 10 (or 20) percent base contribution, it is proposed that this payment be an equal payment for all members. Scales of contributions under both the 10 and 20 percent scenarios for Years 1 to 5 are shown in Table 3.

The base payment should be paid in a lump sum by each member of the Commission at the commencement of each financial year.

20 percent national wealth payment

The national wealth payment should account for 20 percent of the total annual budget of the Commission.

The payment should be related to the GNP *per caput* of members of the Commission.[11] It is proposed that in:

- low income countries (L) (where GNP *per caput* is less than US $765 per annum) should contribute a zero share to the national wealth payment.[12] China is the only country participating in the MHLC process in this category of countries.
- middle income countries (M) (GNP *per caput* is greater than US $766 and less than $9,385 per annum) should contribute a 0.5 share to the national wealth payment.[13] Countries and territories participating in the MHLC process in this category include Cook Islands, Fiji, Indonesia, Kiribati, Marshall Islands, Micronesia Federated States of, Nauru, Niue, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu; and
- high income countries (H) (where GNP *per caput* is greater than US $9,386 per annum) should contribute 8 shares to the national wealth payment. Countries and territories participating in the MHLC process in this category include Australia, Chinese Taipei, France, French Polynesia, Japan, Republic of Korea, New Caledonia, New Zealand and USA.

The national wealth payment should be paid in a lump sum by each member of the Commission at the commencement of each financial year.

70 (or 60) percent fish production payment

In determining the relative payments of members to the 70 (or 60) percent fish production contributions the following considerations should be taken into account:

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[11] GNP data are for 1995 and are readily available from a UN source. United Nations Development Programme. 1998. Human Development Report 1998. Oxford University Press. New York. p.225. The following MHLC participants are not listed in the GNP data from this source: Cook Islands, Nauru, Niue, Chinese Taipei, Palau and Tuvalu. However, 1995 GNP *per caput* data for Cook Islands (M), Chinese Taipei (H) and Tuvalu (M) are available from Asian Development Bank sources. For the purposes of this exercise it is assumed that Nauru, Niue and Palau fall within the (M) category of countries.

[12] In both IOTC and GFCM members in this category contribute zero percent to the national wealth payment.

[13] In IOTC and GFCM countries in this developmental category contribute 2 percent of the contribution.

- total catch of the four tuna species that are the directly targeted for management (skipjack tuna, yellowfin tuna, albacore tuna and bigeye tuna) in the Convention Area;
- total catch by Flag State in the Convention Area, irrespective of whether the catch is taken in EEZs of the coastal States or on the high seas;[14]
- an OECD/non-OECD country weighting.

All tuna catch data used for calculation purposes should be based on a three-year moving average. This averaging of data has the effect of smoothing movements:

- production;
- members' contributions; and
- Commission income.

For OECD countries a weighting factor for catches of 1.0 is proposed and for non-OECD countries a factor of 0.2 is suggested. These relative weights have already been accepted, and are being used by, the Indian Ocean Tuna Commission (IOTC).

[14] Catch data could be refined for calculation purposes (e.g. by species or gear type) but such refinement could unduly complicate calculations. Such refinement is not used in determining payments for IOTC, for example. It is therefore proposed that in the interests of simplicity that only aggregate data be used.

PREPARATORY CONFERENCE FOR THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC
Second session
Madang, Papua New Guinea
25 February – 1 March, 2002

WCPFC/PrepCon/WP.5
19 February 2002

PREPARATORY CONFERENCE ORGANIZATIONAL FUND AND PREPARATORY CONFERENCE SECRETARIAT

Report of the Secretariat

1. In its decision of 28 April 2001 relating to arrangements for future sessions of the Preparatory Conference and for a Preparatory Conference Secretariat (WCPFC/PrepCon/8), the Preparatory Conference agreed, inter alia, to establish a Preparatory Conference Organizational Fund (PCOF), to be financed through voluntary contributions or funding in kind, and to establish a Preparatory Conference Secretariat, consisting of a head and such advisers as the Chairman considers necessary, to service future meetings of the Preparatory Conference. The purpose of the present report is to provide information to participants in the Preparatory Conference on the status of the PCOF and on the practical arrangements that have been made to administer the fund as well as on the arrangements that have been made with respect to the Preparatory Conference Secretariat.

Preparatory Conference Organizational Fund

2. The PCOF was established in July 2001. In accordance with paragraph 2 of document WCPFC/PrepCon/8, the PCOF is administered by the Director of the South Pacific Forum Fisheries Agency and may be used to offset the following costs:

(a) In-country conference costs (where sessions hosted by a developing country);

(b) Chairman's travel and associated costs;

(c) Preparatory Conference Secretariat travel and associated costs;

(d) appropriate retainer fees, consultancy fees and miscellaneous administrative expenses.

3. In accordance with paragraph 2 of document WCPFC/PrepCon/8, the Chairman of the Preparatory Conference and the Director of the South Pacific Forum Fisheries Agency were requested to develop guidelines for the administration of the PCOF, to be applied on a provisional basis pending approval of the Conference. The agreed guidelines, contained in an exchange of letters between the Chairman of the Preparatory Conference and the Director of the South Pacific Forum Fisheries Agency are set out in Annex 1.

4. As at 19 February 2002, donations to the PCOF had been made by the Governments of Australia, China, New Zealand, Papua New Guinea, Chinese Taipei and the United States. An

additional contribution direct to the Government of Papua New Guinea had also been made by the Government of the Republic of Korea. Annex 2 shows the status of the PCOF as at 19 February 2002 and a schedule of disbursements made.

Preparatory Conference Secretariat

5. The Preparatory Conference also decided to establish a Preparatory Conference Secretariat to service future meetings of the Preparatory Conference. (WCPFC/PrepCon/8, para. 5). It was agreed that the Secretariat would consist of a Head and such technical advisers as the Chairman considers necessary, having due regard to the need for economy and efficiency. In accordance with paragraph 6 of WCPFC/PrepCon/8 the Chairman was requested to identify and enlist the services of appropriate individuals with the necessary expertise, integrity and impartiality to form the Preparatory Conference Secretariat. The functions of the Preparatory Conference Secretariat would be as follows:

(a) Preparation of background papers, documents and reports as required;

(b) Maintaining the official records of the Preparatory Conference;

(c) Assisting the Chairman and other officers in all tasks to facilitate Preparatory Conference outcomes;

(d) Transmission of the official communications of the Preparatory Conference;

(e) Organizational work and liaison with host governments for future sessions of the Preparatory Conference.

In carrying out its functions, the Preparatory Conference Secretariat would consult, as necessary, with other experts and regional and international organizations.

6. In accordance with the above decision of the Conference, in July 2001, the Chairman appointed Michael W. Lodge as Head of the Preparatory Conference Secretariat for a period commencing one month after the conclusion of the First Session of the Preparatory Conference and concluding one month after the Second Session of the Preparatory Conference. The terms of this appointment were set out in a letter of appointment drawn up by the Chairman after consultation with the governments which contributed initially to the PCOF. The arrangements for the appointment of the Chairman were set out in a note dated 30 November 2001 also drawn up after consultation with the governments which contributed initially to the PCOF for the purpose of recording certain understandings regarding the appointment. Since July 2001, the work of the Preparatory Conference Secretariat has been carried out by the Head of the Secretariat, in consultation with the Chairman. Additional help for the Chairman, primarily of a secretarial nature, has been provided in kind by the Government of New Zealand.

7. With respect to the substantive work outputs requested by the First Session of the Preparatory Conference, bearing in mind the need for efficiency, the Secretariat decided to engage the services of consultants to prepare reports for Working Group I and Working Group 2 in accordance with the terms of reference agreed by each working group.

8. It is, however, necessary to report that the workload of the Secretariat has been considerably higher than originally anticipated. While it has been possible to deal with most

issues using email, telephone and fax, the volume of correspondence and the number of issues that have arisen has required a considerable investment of time on the part of the Chairman and Head of the Secretariat beyond the level that was originally anticipated. The lack of a physical headquarters for the Secretariat and permanent support staff means that these officers are also required to devote time to routine functions such as record-keeping, maintenance of mailing lists and other administrative matters as well as substantive tasks. The main tasks carried out by the Secretariat since July 2001 include:

(a) Establishment of the website for the Preparatory Conference, www.ocean-affairs.com;

(b) Establishment and maintenance of an electronic mailing list;

(c) Provision of information to participants through the website and electronic mailing list;

(d) Liaison with host government for PrepCon 2;

(e) Negotiation of administrative guidelines with the Director of the Forum Fisheries Agency;

(f) Circulation of requests for contributions to the Preparatory Conference Organizational Fund and necessary follow-up;

(g) Follow-up on work requested by WG.I and WG.II at the First Session;

(h) Preparation of terms of reference for studies requested by WG.I and WG.II, identification of consultants and negotiation of consultancy contracts;

(i) Ongoing supervision of consultants;

(j) Drafting of meeting papers for PrepCon 2;

(k) *Ad hoc* consultations with delegations on PrepCon issues

9. It is suggested that the Preparatory Conference may wish to review the way in which the arrangements for secretariat support to the process have operated in practice and to consider how best to strengthen the Secretariat as the Preparatory Conference continues. In this regard, it should be noted that the present arrangements may not be adequate to meet the demands of the process as the Preparatory Conference continues, particularly once it becomes necessary in due course to make practical arrangements for the establishment of the Commission and the entry into force of the Convention. In addition, it is suggested that the Preparatory Conference may wish to establish a mechanism to review and determine the appropriate level of compensation to be offered to the officers of the Secretariat. Such a mechanism might, for example, consist of a small committee of representatives of participating delegations.

Recommendations

10. The Preparatory Conference is invited to:

(a) approve the guidelines for the administration of the Preparatory Conference Organizational Fund as set out in Annex 1 to the present report;

(b) express its appreciation to those participating governments that have contributed to the PCOF or otherwise contributed financially to the Preparatory Conference;

(c) note the status of the Fund as at 31 January 2002 (Annex 2);

(d) note the existing arrangements with respect to the Preparatory Conference Secretariat;

(e) provide further direction with respect to the practical arrangements for a Preparatory Conference Secretariat and establish a mechanism to review and determine the appropriate level of compensation to be offered to the officers of the Secretariat;

(f) invite those participants that have not already done so, as well as to intergovernmental organizations and agencies, national institutions, non-governmental organizations and international financial institutions to make voluntary contributions to the Preparatory Conference Organizational Fund.

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Annex I

17 July 2001

AGREED GUIDELINES FOR OPERATION OF THE PREPARATORY CONFERENCE ORGANIZATION FUND

Establishment:

1. As authorized by the Decision of the Preparatory Conference on Arrangements for Future Sessions of the Preparatory Conference for the Establishment of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific (WCPFC/PrepCon/8), the Forum Fisheries Agency (FFA) shall establish the Preparatory Conference Organization Fund (PCOF) as a separate account with its bankers. The Fund shall be maintained in U.S. dollars.
2. Contributions to the PCOF received by FFA from donors shall be paid to the PCOF account. FFA will promptly advise the Chairman of the Preparatory Conference ("the Chairman") of such receipts.

Purposes:

3. The PCOF will be used solely for the purposes set out in paragraph 2 of document WCPFC/PrepCon/8, namely:
   (a) In-country conference costs (where sessions hosted by a developing country);
   (b) Chairman's travel and associated costs;
   (c) Preparatory Conference Secretariat travel and associated costs;
   (d) appropriate retainer fees, consultancy fees and miscellaneous administrative expenses;
   (e) FFA management and administrative costs; and
   (f) Any other costs approved in writing by the Chairman or Head of the Interim Secretariat.

Expenditure:

4. FFA's role in relation to the PCOF and Preparatory Conference is to collect and bank donor contributions and to make payments as requested or agreed in writing by the Chairman or Head of the Interim Secretariat.
5. The Director of FFA, or person designated by him, will be responsible for arranging disbursement transactions from the PCOF in accordance with these guidelines and subject to requests by the Chairman or the Head of the Interim Secretariat acting on the Chairman's behalf. As far as possible, such requests will be accompanied by relevant supporting documentation to justify the expenditure in the form of receipts, contracts, agreements, etc. Where payments of travel costs are requested, FFA will be advised of the approved allowance levels, class of travel, and itinerary.
6. In the absence of supporting documentation the Chairman's written request or that of the Head of the Interim Secretariat will be sufficient authority for FFA to process the payment.
7. All expenditure from the PCOF must be specifically approved in writing by the Chairman or by the Head of the Interim Secretariat acting on the Chairman's behalf. As far as possible, the

Chairman will provide FFA with an estimate of anticipated expenditure from the PCOF at each session of the Preparatory Conference.

8. The contracting principal in relation to any contracts for experts will be the Chairman, with FFA acting as the processor of consultancy payments. At all times during the period of these Agreed Guidelines, FFA is not the agent of the Chairman.
9. Where the PCOF is used to support in-country conference costs, the host country will be responsible for the prior submission to the Chairman, through FFA, of an estimated budget for costs associated with the hosting of the Preparatory Conference. The estimated budget must be approved by the Chairman before the expenditure of any funds from the PCOF for such purposes. FFA will not make any disbursement from the PCOF in respect of in-country conference costs unless such costs are specifically included in the approved budget.

FFA responsibilities:

10. FFA is responsible for the proper administration of the PCOF in accordance with these guidelines and good financial management practices.
11. FFA will not make any disbursement from the PCOF unless sufficient funds are deposited in the PCOF.
12. FFA will provide a current financial statement on the PCOF for each session of the Preparatory Conference.
13. The PCOF will be subject to the annual auditing procedures of FFA.

Preparatory Conference Chairman's responsibilities:

14. The Chairman will take all reasonable measures to facilitate FFA's administration of the PCOF and to ensure that FFA receives payment of its administrative costs at the standard programme support rate of 10% in the manner agreed between FFA and the Chairman.

Interest:

15. All interest earned on the PCOF shall be returned to the fund.

Completion of the PCOF:

16. The PCOF shall continue to operate until determined by the Preparatory Conference or by the Commission. The Preparatory Conference or the Commission shall determine the disbursement of funds from the PCOF on completion.

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Annex II

Status of Preparatory Conference Organizational Fund as at 19 February 2002

	USD	USD
A. Contributions received (net) *		
Australia	51,440.00	
China	29,980.00	
New Zealand	41,480.00	
Papua New Guinea	26,154.34	
Chinese Taipei	10,000.00	
United States of America	87,000.00	
B. Other income		
Interest	583.37	
Total receipts	**246,639.71**	**246,639.71**
C. Disbursements		
*(a) In-country conference costs ** *	0	
*(b) Chairman's travel and associated costs *** *	1,971.52	
*(c) Secretariat travel and associated costs *** *	10,477.53	
(d) Retainers, consultancy fees and miscellaneous administrative expenses	33,446.38	
(e) FFA management charges	1,287.59	
(f) Other costs	0	
Total disbursements	**47,183.02**	**47,183.02**
D. Fund balance		**199,456.69**

Notes:

* A contribution of USD 50,000 towards the costs of the second session of the Conference was made by the Republic of Korea direct to the Government of Papua New Guinea.

** Conference costs to be charged to the PCOF in respect of PrepCon 2 are estimated at USD 40,000. No disbursements have yet been made.

*** Additional disbursements of USD 6,000 are anticipated to cover per diems, travel expenses, etc.

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WCPFC Preparatory Conference
Third session
Manila, Philippines
18 – 23 November 2002

WCPFC/PrepCon/WP.6
3 October 2002

WORKING GROUP 3 (MONITORING, CONTROL AND SURVEILLANCE): NEEDS OF THE COMMISSION WITH RESPECT TO MONITORING, CONTROL AND SURVEILLANCE

Prepared by the Chairman of WG.III

1. In accordance with the decision of the Preparatory Conference at its second session (WCPFC/PrepCon/16, paragraph 17), WG.III is to begin its work during the third session. It will be recalled that the terms of reference for WG.III are contained in document WCPFC/PrepCon/13.

2. The following suggested list of needs of the Commission with respect to monitoring, control, and surveillance (MCS) is based on the needs identified by WG.I at the first session of the Preparatory Conference (see document WCPFC/PrepCon/5). For the purposes of WG.III, the list has been amended and expanded to reflect the more technical and detailed focus of the Working Group on the range of MCS issues under consideration. The list identifies, in particular, those issues and tasks that will form the core of the Working Group's work programme, taking into account the terms of reference. In this regard, WG.III should also consider the draft programme of work, which appears at Annex I.

3. In order to meet the needs of the Commission with respect to MCS issues, it is suggested that WG.III should perform the following tasks:

(a) Define and establish the MCS component of the Commission's observer programme and develop such a programme consistent with the Convention (Article 28) (see attached draft elements in Annex II).

(b) Establish procedures for practical implementation of a boarding and inspection scheme (Article 26) (see attached draft elements in Annex II).

(c) Establish standards, specifications and procedures for the operation of a vessel monitoring system (Article 24(8) and (9)).

(d) Develop guidelines for regulating and monitoring transshipment (Article 29).

(e) Develop guidelines for creation of national vessel registries (Article 24(4)) and the regional vessel registry (Article 24(7)).

(f) Establish a process for reviewing and assessing implementation of and compliance with conservation and management measures adopted by the Commission (Article 23).

(g) Develop catch and effort monitoring and verification schemes.

(h) Other (includes provisions for port inspections, non-discriminatory trade measures, vessel and gear markings and other issues).

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Annex I

WORKING GROUP III: TENTATIVE WORK PROGRAMME

First Meeting

Discuss and, if possible adopt:

- Needs of the Commission with respect to MCS;
- Tentative work programme;
- Elements for boarding and inspection scheme and observer programmes.

Begin discussions (time permitting) on broader MCS issues. Wide-ranging discussion to include boarding and inspection, observers, VMS, transshipment, vessel registers, reporting requirements and other issues that participants may raise. Establish inter-sessional tasks for Chair and/or Secretariat.

Second Meeting

- Elaboration of draft boarding and inspection plan for substantive discussion.
- Establish procedures for regional vessels register; authorization to fish.
- Begin discussions (time permitting) on observer programme, VMS, vessel and gear markings.

Third Meeting

- Conclude discussions on boarding and inspection scheme.
- Adopt, if possible, draft boarding and inspection scheme to recommend to the Commission.
- Continue discussions on observer programme, VMS, vessel and gear marking.

Fourth Meeting

- Conclude discussions on observer programme, VMS and vessel and gear marking.
- Adopt recommendations on the above for the Commission.
- Begin discussions on monitoring of transshipment, port state inspections.

This tentative work programme will be re-evaluated on a periodic basis and modified as necessary.

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Annex II

A. POSSIBLE ELEMENTS FOR PROCEDURES ON BOARDING AND INSPECTION

- Definition and Scope of Boarding and Inspection Scheme;
- Register of Vessels Authorized to Conduct Enforcement Activities in the Convention Area;
- Standardized Training for Enforcement Personnel;
- Guidelines Governing Boarding and Inspections Procedures including Provisions for Ensuring the Safety of the Boarding Party, Vessels and Crew;
- Guidelines Governing Use of Force;
- Coordination Between the Secretariat and Enforcement Authorities of Parties Conducting High Seas Boarding and Inspection, and between Respective Enforcement Authorities of Parties.

B. POSSIBLE ELEMENTS FOR DEVELOPMENT OF OBSERVER PROGRAMMES

- Parameters and Guidelines for Observer Programs with Respect to MCS functions;
- Guidelines to Determine Effective Level of Coverage (which could vary from fishery to fishery depending on the specific needs with respect to specific species, fleet, or geographic area);
- Possible Phase-in or Incremental Approach to Commission Observer Program for Various Fleets and Fisheries;
- Provisions Regarding the Deployment of Observers on Board Various Fleets, Including the Possible Hiring by the Commission of Nationals of Fishing States/Entities for Deployment as Commission Observers on Vessels of that State/Entities;
- Guidelines for Observer, Captain and Crew with Respect to Observer Safety, Duties and Responsibilities, Accommodations, Access, etc.;
- Standardized Observer Training.

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WCPFC Preparatory Conference
Third session
Manila, Philippines
18 – 23 November 2002

WCPFC/PrepCon/WP.7
23 October 2002

WORKING GROUP I
(ORGANIZATIONAL STRUCTURE, BUDGET AND FINANCIAL CONTRIBUTIONS)

INDICATIVE COSTS FOR A COMMISSION SECRETARIAT AND RELATED ISSUES

Prepared by the Secretariat

I. INTRODUCTION

1. During the second session of the Preparatory Conference (PrepCon 2) in March 2002, Working Group I (WG. I) was able to further clarify the service needs of the future Commission during the early years of its operations and elaborate upon possible options for the delivery of those service needs, including an appropriate secretariat structure. It is recalled that WG.I agreed that the following principles would serve as a guide to its work:

(a) The Commission should, as far as possible be self-reliant with respect to funding;

(b) The Commission secretariat must be independent and adequately resourced in order to ensure an efficient and cost-effective organization;

(c) Services procured by the Commission should be sourced at market rates and subject to clear standards and specifications;

(d) Every effort should be made to avoid duplication in the provision of services, ensure compatibility and maintain cost-effectiveness.

2. WG.1 adopted an indicative programme of work for the third and fourth sessions of the Preparatory Conference. In accordance with that programme of work, WG.I is to focus its work at PrepCon 3 on the development of greater precision in the provisional indicative budget of the Commission with respect to:

(a) the costs of a Commission secretariat to deliver core functions and science;

(b) the costs associated with the various options for providing additional Commission services;

(c) possible mechanisms for funding the participation of developing states consistent with article 30, paragraph 3, of the Convention;

(d) the application of cost recovery principles for the provision of specified Commission services.

3. To assist WG.I in considering these matters the Preparatory Conference Secretariat was requested to prepare working papers addressing the following issues:

(a) Information on the various options available for the remuneration of the staff of the Commission secretariat;

(b) The costs associated with a core secretariat structure, on the basis of that proposed in working paper WCPFC/PrepCon/WP.3, together with a science secretariat on the basis of the discussions in WG.II;

(c) Estimates of the costs associated with the provision of such additional Commission services as may be required in the medium term, including a comparison between the costs of utilizing existing regional programmes or systems and the 'in-house' provision of these services by the Commission;

(d) Estimates of the potential size and scope of the special fund established pursuant to article 30, paragraph 3, of the Convention;

(e) Information on the application of cost recovery principles to various Commission services.

II. SECRETARIAT STRUCTURE AND INDICATIVE COSTS

A. Proposed secretariat structure

4. There was broad support within WG.I for using the proposed secretariat structure presented in document WCPFC/PrepCon/WP.3 as a basis for further consideration of the costs associated with the Commission secretariat. That structure was based upon an Executive Director appointed in accordance with the Convention, five Professional staff members and seven General Service staff recruited at locality rates, giving a total staff of 13. While this basic structure has been maintained, the model has been further refined in the light of the discussions that took place at PrepCon 2 in both WG.I and WG.II.

5. It will be recalled that, although the outcome of the discussions within WG.II was not conclusive, WG.II did develop a revised alternative for the structure of the scientific functions (WCPFC/PrepCon/15, Annex I). Under the alternative developed by WG.II a staff of one senior scientist and one scientific analyst would be required to manage the external provision of science services. For data services, a staff of one data manager, one observer programme manager (as necessary), two data analysts (one dealing with commercial fisheries data and one dealing with observer and research data) and two data entry clerks would be required.

6. These additional requirements have been taken into account in developing the revised model structure set out in Annex I to the present document. As far as possible, the functions identified by WG.II have been assimilated into the provisional structure reviewed by WG.I (e.g. the functions of Science Manager and Senior Scientist are merged, as well as the functions of IT Manager and Data Manager). By combining the outcome of the discussions in WG.I and WG.II an overall staffing level of 17 (eight Professional and nine General Service) is achieved.

7. It would clearly be unrealistic to expect the secretariat to be fully functional in its first year of operation. Accordingly, an evolutionary approach to the establishment of the secretariat is proposed whereby, in the first year of operation, it would be necessary to fund a core staff of 10. During the second and third years of operation, this would be increased to a total of 17 positions as the secretariat begins to carry out the full range of functions identified in the Convention.

8. In considering in more detail the need for each staff position, it has been possible to give greater precision to the functions of each proposed staff member. The broad functions of each proposed staff position are elaborated in the table contained in Annex II to the present document. The table also indicates the year in which it might be anticipated that each staff position would become operational. It is considered that the structure outlined in Annexes I and II should be sufficient to meet the Commission's service needs in the medium term provided that the use of external providers of certain technical functions is maximized.

B. Indicative costs of proposed secretariat structure

9. The costs associated with the establishment of a Commission secretariat include not only the direct costs associated with the recruitment and remuneration of staff, but also other costs attributable to the core budget of the organization, including the general operating costs of the Commission, the purchase and maintenance of capital assets, meeting costs and the costs of the provision of services to the Commission. The latter item is considered in more detail in Part III of the present report.

1. Remuneration system for staff of the secretariat

10. At least in the early years, the largest component of the budget is likely to be staff costs, including salaries, allowances and the costs of recruitment. In most intergovernmental organizations, the relationship between the staff and the employing organization, including the terms and conditions of service, is governed by a set of Staff Regulations, established by the members of the organization and elaborated through administrative directions and rules established by the chief executive officer of the organization.

11. In determining an appropriate remuneration system for the staff of the Commission secretariat, it is important to recall article 16, paragraph 2, of the Convention, which provides as follows:

> " The paramount consideration in the recruitment and employment of the staff shall be the necessity of securing the highest standards of efficiency, competence and integrity. Subject to this consideration, due regard shall be paid to the importance of recruiting the staff on an equitable basis between the members of the Commission with a view to ensuring a broad-based Secretariat."

Similar provisions appear in the constituent instruments of many international organizations, most notably in article 101 of the Charter of the United Nations and in article 167, paragraph 2, of the United Nations Convention on the Law of the Sea. The provision makes it clear that the paramount consideration is the need to secure staff of the highest standards of efficiency, competence, and integrity. The establishment of the remuneration system should reflect this intention. If the Commission is to attract the highest quality candidates then remuneration will be an important consideration as there is likely to be considerable competition in the employment market for such personnel. Article 16 also requires due regard to be paid to the importance of recruiting the staff on an equitable basis between the members of the Commission with a view to

ensuring a broad-based secretariat. On the basis that the Commission will have a membership drawn from States both within and beyond the Asia-Pacific region it may also be appropriate to consider the extent to which the Commission should seek to attract suitably qualified applicants from across the entire range of potential member States. In the United Nations, which applies a common system of salaries and allowances to over 52,000 international staff members, these competing objectives have been reflected in the so-called Noblemaire principle, which places importance upon the ability to recruit from all member States by establishing the base salaries of professional staff by reference to the highest paid national public service (in the case of the United Nations this is considered to be the U.S. Federal Civil Service).

11. One option would clearly be for the Commission to participate in the United Nations common system of salaries and allowances. This is a comprehensive system, covering all aspects of employment in the international civil service, including salaries and allowances, pension entitlements and a system of administrative justice. The system is regulated and coordinated by the International Civil Service Commission. In addition to the United Nations and its specialized agencies, the system is also applied by numerous other international organizations, including several regional fisheries management organizations and some of the existing tuna management organizations and other regional organizations with jurisdiction in the Pacific region.[1] Among the advantages of applying this system to the Commission would be its transparency, its portability, and the fact that it is already accepted by all participating governments as satisfying the criteria set out in article 16. There also exists a well-developed and transparent system for the administration of justice and the staff of the Commission would have the benefit of eligibility to participate in the United Nations Joint Staff Pension Fund. One significant advantage for the purposes of budgeting is that sophisticated methodologies exist for standardized costing of staff positions. On the other hand, it may be argued that the UN system is administratively complex and unnecessarily burdensome to apply within a relatively small organization.

12. Another option would be to look to a regional system of salaries and allowances, such as the system applied by the agencies of the Council of Regional Organizations of the Pacific (CROP).[2] CROP adopted a harmonized set of employment conditions for its agencies in January 2001 under which salaries for professional staff are based upon the median of the Australian Public Service Base Salary market. While the CROP system is not as well-developed as the UN system, it retains the same basic features, including the link to a comparator civil service for establishing the base salary scale and the usual expatriate benefits such as recruitment and re-assignment grants, removal allowances, home leave, education grant, medical and life insurance, superannuation and cost of living adjustments applicable to specific duty stations. The major defect with the CROP system, as applied to the Commission, is that it is not designed to accommodate the needs of countries which are not members of the CROP organizations. Further, those countries have not had the opportunity to provide any input into the process of establishing the CROP standards. Further, the concept of a regional civil service is not well-developed and there is no centralized administration of terms and conditions nor is there any standardized methodology for the purposes of budgeting for staff positions. There is also no pension fund. Indeed, under their respective constituent instruments the governing bodies of the CROP

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[1] Some of the regional fisheries management organizations that apply the UN Common system include: The Commission for the Conservation of Southern Bluefin Tuna (CCSBT); The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR); the International Commission for the Conservation of Atlantic Tunas (ICCAT); the Indian Ocean Tuna Commission (IOTC).

[2] The organizations involved include the Forum Fisheries Agency (FFA); the Pacific Forum Secretariat (ForSEC), the Secretariat of the Pacific Community (SPC), the South Pacific Applied Geoscience Commission (SOPAC); and the South Pacific Regional Environment Programme (SPREP).

organizations have different membership and retain the power to adopt and amend Staff Regulations which are specific to the organization concerned.

13. Since neither the UN common system nor the CROP system seem entirely appropriate for the needs of the Commission, it is suggested that WG.I may wish to consider applying a system for remuneration which is based upon the CROP system but with such modifications as may be necessary in order to satisfy the requirements of article 16. In this way, initial appointments to the Commission secretariat could be made at least on a short-term basis in accordance with the existing CROP system, pending the approval by the Commission of Staff Regulations in its first few years of operation. Any adjustments to the CROP system that may be required for practical purposes could be reflected in the Staff Regulations.

14. In terms of budgeting, the most significant component of the difference in salary costs between the UN common system and the CROP system is the base salary component of each salary scale. However, once other factors have been taken into consideration, including the considerable overlap that exists between salary scales, it would appear that the financial implications of using either scale are quite similar. Whilst, in general terms, the UN salary scale appears higher than the CROP salary scale, the point at which an individual staff member is placed on the CROP scale is influenced to a greater extent by market conditions and the circumstances of the individual concerned (e.g. number of dependents etc). As it is probably not necessary at this stage of the deliberations to adopt definitively either scale, the anticipated staff costs of the Commission in the first years of operation are presented in Annex III to the present paper in the form of an indicative range, based on an assessment of the likely range of costs under either a UN system or a CROP-based system. The notes to the tables presented in Annex III explain the assumptions that have been used in compiling the tables. It must be stressed that, while budgeting methodologies for the UN system are relatively certain, those for the CROP-based system are less easy to predict, and the tables have therefore been compiled using the mid-point on the CROP salary scale. Regardless of the eventual decision of the Commission with regard to the terms and conditions of the staff of the secretariat, it is considered that the tables in Annex III are a reliable indication of the likely staff costs for the Commission over the first three years of its operation and should be regarded as such by WG.I for the purposes of determining the likely budget of the Commission.

2. General operating expenses

15. In addition to staffing costs, the Commission will also have to meet the ongoing general operating expenses of the secretariat. These would include staff travel, consultancy, maintenance of capital assets (vehicles, computers etc.), communications, electricity, office supplies, printing, general maintenance and security, library acquisitions and subscriptions, external printing, audit fees and bank charges. Since many of these items, especially those relating to utilities, security and communications, are heavily influenced by the location of the headquarters, it is not really possible at this stage to give any more than a general indication of the extent of the costs involved.

3. Purchase and maintenance of capital assets

16. It is assumed and proposed that the Commission will not own real estate assets. Office accommodation, free of charge, should be provided by the host government. However, particularly in the early years of operation of the Commission, there will be a need to acquire capital assets. These include, for example, vehicles, office furniture, photocopiers, library books

and supplies and computers (network server, web server etc.). These should therefore be reflected in the indicative budget.

4. Meeting costs

17. Given the small size of the proposed secretariat, it is likely that there would be a need to make provision for the hire of temporary staff when the Commission is in session. Depending upon the facilities available at the site of the headquarters of the Commission, there will also be a need to make provision for the hire of meeting space, including rental of additional photocopiers, computers and other essential equipment.

III. MODALITIES FOR FUNDING THE PARTICIPATION OF DEVELOPING STATES

18. Article 30, paragraph 3, of the Convention requires the Commission to establish a fund to facilitate the participation of developing States Parties, particularly small island developing States, and where appropriate, territories and possessions. For the purpose of the present analysis the funding of territories and possessions has not been considered as it is assumed that the State Party responsible for the international affairs of such territories and possessions will as necessary assume responsibility for the funding of participation. Should this assumption be incorrect, the following paragraphs would need to be revised accordingly.

A. Extent of the Fund

19. In order to determine the potential costs associated with the funding of the participation of developing States Parties a number of assumptions have been made. It is assumed that all developing States Parties (a total of 17 States on the basis of participation in MHLC and the Preparatory Conference process to date) will be eligible for funding; funding will be on the basis of an economy return airfare (assumed to be on average approximately US$2,500) for one delegate (the Commissioner) from each eligible developing State Party; and per diems will be paid for a 7 day period (5 days for the Commission meeting plus one day travel either side) at a rate of US$ 145 per day (the highest UN per diem rate for the known range of potential host countries for the Commission headquarters).

20. On the basis of the assumptions outlined in the preceding paragraph the total size of the fund to be established under article 30, paragraph 3, of the Convention would be in the order of US$ 42,500.

B. Financing the Fund

21. The Convention in articles 17, 18 and 30 (the various articles concerned with the finance of the Commission and the funding of developing State party participation) does not give clear guidance as to the mechanism to be used for financing the fund under article 30 paragraph 3. Article 18 of the Convention, concerned with the budget of the Commission, places the onus on the Executive Director to identify those items of the budget to be financed through assessed contributions and those which are to be financed through either voluntary contributions, the fund under article 30, paragraph 3, or other funds received. In practice, two main options are available for providing financial assistance to members of the Commission from developing States. One option is to establish a voluntary trust fund for such purpose. The other option is to make provision from within the administrative budget of the Commission (i.e., through assessed contributions).

1. Voluntary contributions and other funds

22. The general approach internationally to funding of developing State participation in international meetings is through reliance upon voluntary contributions. No regional fisheries management organization currently provides for an explicit fund financed via the normal funding provisions of the organization in order to facilitate participation by developing States Parties. Within the United Nations system, for example, voluntary contributions are an important source of financing. There are, for example, a number of programmes approved by the General Assembly which are funded in whole or in part by voluntary contributions from Member States, non-Member States and other sources. These programmes include, inter alia, UNICEF, UNHCR, UNRWA, UNIDO, UNDP and UN peace-keeping operations. Voluntary contributions are not treated as part of the regular budget of the United Nations, but are designated as extra-budgetary funds or trust funds. While international organizations create trust funds for various activities, the only general condition for their establishment is that their purposes must fall within the aims of the organization. Generally, the Financial Regulations of the organization concerned would contain special provisions relating to trust funds.

23. In the present case, the size of the fund envisaged, $42,500, is such that it is not unreasonable to expect that voluntary contributions alone could be sufficient to sustain the fund. If it were assumed that the voluntary contributions involved are all derived from those members of the Commission with developed economies then, based upon a Commission consisting of 24 members, the level of voluntary contributions would be in the order of US$6,000 per contributing member. It is also possible that external funding sources such as international development agencies and the development and aid agencies of various non-members of the Commission may contribute to the voluntary fund in support of participation by developing States and in particular the small island developing States of the region.

2. Assessed contributions

24. At various times both in the MHLC and in the Preparatory Conference some developing States have expressed concern about reliance upon voluntary contributions to finance the fund envisaged under article 30, paragraph 3. It is perceived by some that reliance upon voluntary contributions does not create sufficient security. An alternative approach would be to include this item of the budget within those that are to be financed through assessed contributions under article 17, paragraph 1(a). This approach would see all members of the Commission making some contribution towards the fund; however, the majority of the burden for financing the fund would continue to rest with the members of the Commission with developed economies. Article 18, paragraph 2, of the Convention outlines the matters to be given due consideration in the development of an assessed contributions formula for the Commission. It is clear from article 18, paragraph 2, and the recent approaches adopted by tuna commissions such as the IOTC and ICCAT that there will be a significant weighting in the assessed contributions formula of the Commission in favour of developing States. Recent international instruments such as the 1995 UN Fish Stocks Agreement and the discussions at the WSSD would also support the development of a contributions formula that makes adequate provision for the circumstances of developing countries.

IV. PROVISION OF EXTERNAL SERVICES

25. In the medium term there are a number of services that the Commission may require which can most efficiently be provided by external service providers. Those services may include:

(a) Science and research;

(b) Data management;

(c) Administration of the vessel register;

(d) Vessel Monitoring System.

26. The major difficulty in determining cost estimates for the provision of services has been the absence of definitive information on the nature and extent of the services required. The information summarized below reflects estimates based upon a number of assumptions. In each case the assumptions are outlined. As WG.II and WG.III begin to identify more precisely the technical services required in their respective fields, it will be possible to further refine the cost information for determining the initial budget of the Commission. The analysis in this section of the present paper is based upon cost estimates provided by existing regional organizations (the Oceanic Fisheries Programme of the SPC (OFP) and the Forum Fisheries Agency) and, where possible, advice and cost information from commercial service providers.

A. Science and research

27. In the long-term, the Commission's stock assessment needs may include skipjack, yellowfin, bigeye, South and North Pacific albacore, Pacific bluefin tuna, and broadbill swordfish. There may also be a requirement for assessments of important non-target species, such as various species of marlins, blue shark, and possibly protected species such as marine turtles.

28. In the medium term it has been assumed that the stock assessment needs of the Commission will focus on skipjack, yellowfin, bigeye and South Pacific albacore tunas. Further, it is assumed that these four stocks will be subject to detailed stock assessments once every two years i.e. two stock assessments will be undertaken each year. It has also been assumed that ad-hoc assessments for other species will be conducted less frequently.

29. The OFP currently undertakes science and research in relation to the stocks of concern to the Commission. One potential source of scientific advice and research services to the Commission is through the use of the existing OFP services. On the basis of the above assumptions, OFP has advised that the full costs associated with OFP providing these services would be approximately US$ 520,000. This includes US$ 281,787 per annum for stock assessments of the main tuna species, US$ 75,000 per annum for assessments of other target and non-target species, US$ 114,000 for development, testing and documentation of stock assessment methods and a 10 per cent levy for administrative support.

30. It is estimated that the cost of contracting stock assessment work to commercial science providers (of which there are a number in the Pacific region and further afield) would be in the region of US$ 300,000 for two large stock assessments per year. This figure would include the development, testing and documentation of assessment models and methods.

31. In order to obtain a more accurate assessment of costs there is a need to better identify the nature and extent of stock assessment advice to be sought. This would enable potential service providers (including OFP) to develop specific proposals including detailed cost estimates that can be directly compared and evaluated. This requires clear direction from the Commission as to how it wishes to manage fisheries to ensure that the science fits the management needs.

32. For the purposes of developing an indicative budget for the Commission, however, on the basis of the advice provided by OFP and the indications of the potential cost of utilizing commercial science providers it is likely that the cost of science services to the Commission in the medium term will be in the order of US$ 300-500,000 per annum.

B. Data Management

33. The SCG meeting in Hawaii in July 2002 noted that priorities for fisheries data are (1) estimates of annual catches; (2) catch and effort data, preferably on an operational level (e.g. longline sets, purse-seine sets); and (3) size composition data (length or weight). While these priorities were established in the context of the data needs of the Preparatory Conference it is suggested that these same priorities will likely apply to the Commission in the medium term. On the basis of these priorities the primary focus of the Commission's data management needs in the medium term will be the management of fishery and biological data, primarily catch and effort data and observer data.

34. OFP has advised that the costs associated with OFP providing to the Commission those of its current data services which directly relate to the data needs of the Commission would be approximately US$ 1.1 million. This sum comprises approximately US$ 337,000 for compilation and dissemination of fishery and biological data, approximately US$ 491,000 for financial and technical support to port sampling programmes and observer programmes, US$ 96,000 for statistical analysis of data in relation to data quality and adjustment of estimates, US$ 101,000 to statistical support services for the Scientific Committee of the Commission and for stock assessment activities funded by the Commission, and the remainder of the costs are those associated with administration.

35. The extent to which the Commission will require extensive port sampling programmes in the medium term has not been determined. If it is considered that the specific data needs of the Commission in the medium term do not include port sampling programmes, then the costs indicated by OFP in relation to sampling programmes (US$ 490,000) are not entirely applicable. This would not mean that the Commission would not receive and manage sampling data as clearly the OFP costs for compilation and dissemination of fishery and biological data include provision for such services. Excluding the provision for financing and supporting port sampling programmes the total cost of data services from OFP would be in the order of US$ 590,000 per annum.

36. It should also be noted, however, that included within the figure of US$ 337,000 allocated to compilation and dissemination of fishery and biological data from OFP are costs associated with the employment of four data entry clerks that currently input data from hardcopy sheets. This entry of data from hard sheets is currently undertaken in any event by OFP for its own purposes, recognizing that a number of OFP member states do not have the resources to undertake electronic data submission. It is therefore arguable that the Commission should not be expected to assume the full costs for this service, which would be carried out in any event.

37. It is estimated that the cost of data management if tendered to commercial providers would be in the region of US$ 400,000 – 500,000 per annum. This figure includes provision for a high degree of error checks per form and is on the basis of approximately 250,000 forms processed each year.

38. For the purposes of developing an indicative budget for the Commission, it may be assumed that the likely cost of data services to the Commission in the medium term will be in the

order of US$ 500,000 per annum. As already noted in relation to science services, in order to obtain a more accurate assessment of costs there is need to better identify the nature and extent of data management services to be sought.

C. Vessel Register

39. Article 24 of the Convention requires members of the Commission to maintain a record of vessels authorized to fish in the Convention Area and goes on to require that the information as set in Annex IV of the Convention be provided to the Commission annually or when alterations occur. The Commission is required pursuant to article 24, paragraph 7, to maintain a record of the information provided by members and to circulate this information periodically to all members or on request individually to any member. The Commission could take a number of approaches to the management of these data, ranging from paper records and manual searches, through a simple electronic database to a more complete vessel register system akin to those applied in many national jurisdictions with the ability to search the database.

40. To enable the Commission to satisfy the requirements of article 24, an electronic vessel register is proposed. It has been assumed that capacity for approximately 2,000 vessels would be required in the medium term. This is based upon the 1,200 vessels currently on the FFA system, plus provision for another 1,000 vessels that may either be operating in EEZ jurisdictions outside the FFA membership or authorized to operate on the high seas in the Convention Area.

41. FFA has advised that if it were to be engaged to provide vessel register services to the Commission, the cost to the Commission would be in the order of US$ 120,000 in the first year with ongoing costs of US$ 96,000 per annum. The initial costs include the costs of programming and hardware to create a parallel system to the current FFA register. It is estimated that going out to commercial service providers (which in relation to a vessel register could include providers that manage similar register-style databases in other sectors) is likely to involve costs in the order of US$ 200,000 in the first year with ongoing costs of US$ 100,000 per annum. A commercial register would include all the details, including photographs, stipulated in Annex IV of the Convention and, in addition to regular reports being prepared by the service provider, members of the Commission would also be able to access the register via the Internet.

42. With the secretariat staffing levels proposed in the present paper, it is anticipated that the Commission secretariat could operate an in-house vessel register. The additional cost to the Commission would be the set-up costs associated with the establishment of the database and ongoing maintenance. An indication of possible establishment costs may be drawn from recent international tenders involving a vessel register integrated with a vessel monitoring system. The establishment cost of the vessel register component of such a system is in the order of US$ 400,000. Ongoing costs, in addition to staff and secretariat overheads, would be in the order of US$ 120,000 per annum.

43. It is estimated that in the medium-term, the annual costs to the Commission for provision of the vessel register, based upon the use of either the FFA or a commercial service provider, may be in the order of US$ 100,000 – 200,000 per year.

D. Vessel Monitoring System

44. In accordance with article 24, paragraph 8, of the Convention, the Commission is required to establish a satellite-based vessel monitoring system (VMS) in order to monitor all vessels that fish for highly migratory fish stocks on the high seas in the Convention Area.

45. There are a number of VMS technologies currently available and the extent that the Commission seeks to provide for each technology within the Commission system has significant implications for the cost of the system. The two predominant VMS technologies in the region at the present time are based on either INMARSAT C or ARGOS systems. The 16 member States of the FFA operate a VMS within their EEZ jurisdictions that is based upon Inmarsat C. Some coastal and flag states in the region operate Argos-based VMS upon certain categories of vessels. It has been assumed that costs associated with purchase of vessel transponder equipment, type-approval and installation of units will not be borne by the Commission but will rather be the responsibility of the vessel operator or the flag State of the vessel.

46. FFA has advised that the if it were to provide VMS services to the Commission, the cost would be in the order of US $1.05 million in the first year with annual costs in subsequent years of US$ 976,000 per annum. The first year costs include programming and hardware costs associated with modifying the current FFA VMS in order to accommodate Argos-based VMS technology. If the Commission were to establish an in-house vessel monitoring system based upon the following parameters: (1) capacity for 1000+ vessels; (2) one central monitoring centre with provision to communicate VMS information to member states; (3) ability to accommodate a number of technologies e.g. Inmarsat and Argos; and (4) vessel operators assuming the costs associated with vessel transponder equipment, type-approval and installation, then the cost in the first year could be in the order of US$ 1.4 million. Annual costs in subsequent years may be in the order of US$ 800,000 per annum. Current provisions for secretariat staff, as proposed in Annex II, plus possibly one additional junior professional staff member (as a VMS officer to prepare reports) should be capable of supporting in-house provision of a Commission VMS. The choice of system has the potential to greatly influence the airtime communications costs, which are a significant portion of the annual costs associated with the VMS. If the Commission were to decide on a single technology type this would greatly reduce the establishment cost of any system. One argument in favour of this approach may be the 600+ vessels currently operating in the region, most, if not all, of which will likely be subject to the Commission's VMS requirement, using Inmarsat C technology.

47. Clearly, it is extremely unlikely that the Commission would be in a position to agree on and implement a VMS within the first three years of its operations. There are many technical aspects of the VMS which need to be considered in greater detail by WG.III and, at a later stage, by the Compliance Committee of the Commission. In terms of costs, it is also likely that, with a system as large in scope as that needed by the Commission, further savings in establishment costs could also be realized through international competitive tendering and through negotiations with potential system vendors.

E. Regional observer programme

48. An additional service, the delivery of which will be the subject of further decisions by the Commission, is a regional observer programme. At present a number of options remain to be discussed on the nature of the programme. The proposed Commission secretariat structure, as contained in Annex II, makes provision for the employment of an observer programme manager in the third year of the Commission's operation. If, in the medium term, the Commission relies upon current observer data from national and regional programmes with the Commission secretariat simply administering the system then there will be few additional costs to the Commission.

49. If the Commission wishes to enhance existing observer coverage in the region in the medium term then one option would be to use the observer services available within the FFA.

FFA has advised that if it were to administer a regional observer programme on behalf of the Commission, based upon approximately 2,900 observer days on the high seas with flag states bearing the cost of placement and observer costs (salaries, allowances etc.), then this would entail costs to the Commission in the order of US$ 201,000. If the costs associated with placement of observers and the observer costs were also included then this cost would rise to US$ 428,000 per annum. These costs do not include costs associated with the training of observers. Training costs may, depending on the location of the course and the countries that observer trainees are drawn from, be in the order of US$ 40,000 for up to 20 participants from around the region.

F. Summary

50. In the absence of more detailed information on the nature and extent of some of the larger cost service items, namely the science, data management and VMS services of the Commission, it is difficult to accurately assess the cost of the provision of additional services to the Commission. On the basis of the information currently known and the assumptions outlined in the text above, the total cost of additional services to the Commission in the medium term, excluding additional Commission-run observer coverage, is likely to be in the order of US$ 2 million. As the various working groups begin to better define the service needs of the Commission then it will be possible to further refine this figure.

V. COST RECOVERY

51. It will be recalled that the secretariat has also been requested to provide further information to WG.I on the application of cost recovery principles for the provision of specified Commission services. A separate working paper (issued as WCPFC/PrepCon/WP.8) has been prepared on this issue.

VI. INDICATIVE BUDGET

52. For the purposes of the discussions in WG.I, a draft indicative budget for the first three years of the Commission has been prepared and is contained in Annex IV to the present paper. The draft indicative budget is based upon the assumptions contained in this paper and will clearly be subject to considerable change as discussions in the Preparatory Conference progress. In particular, greater precision will be possible once the following variables have been determined: (a) staff salary scales, (b) location of the Commission, and (c) service needs in relation to science and data management. Nevertheless, given the tenor of the discussions to date, it is suggested that the figures contained in Annex IV provide a reasonably accurate estimate of the anticipated size of the Commission budget in the early years of its operations. This information should enable WG.I to progress to the next stage of its work, which is to determine how such a budget would be funded through a contributions formula in accordance with the Convention.

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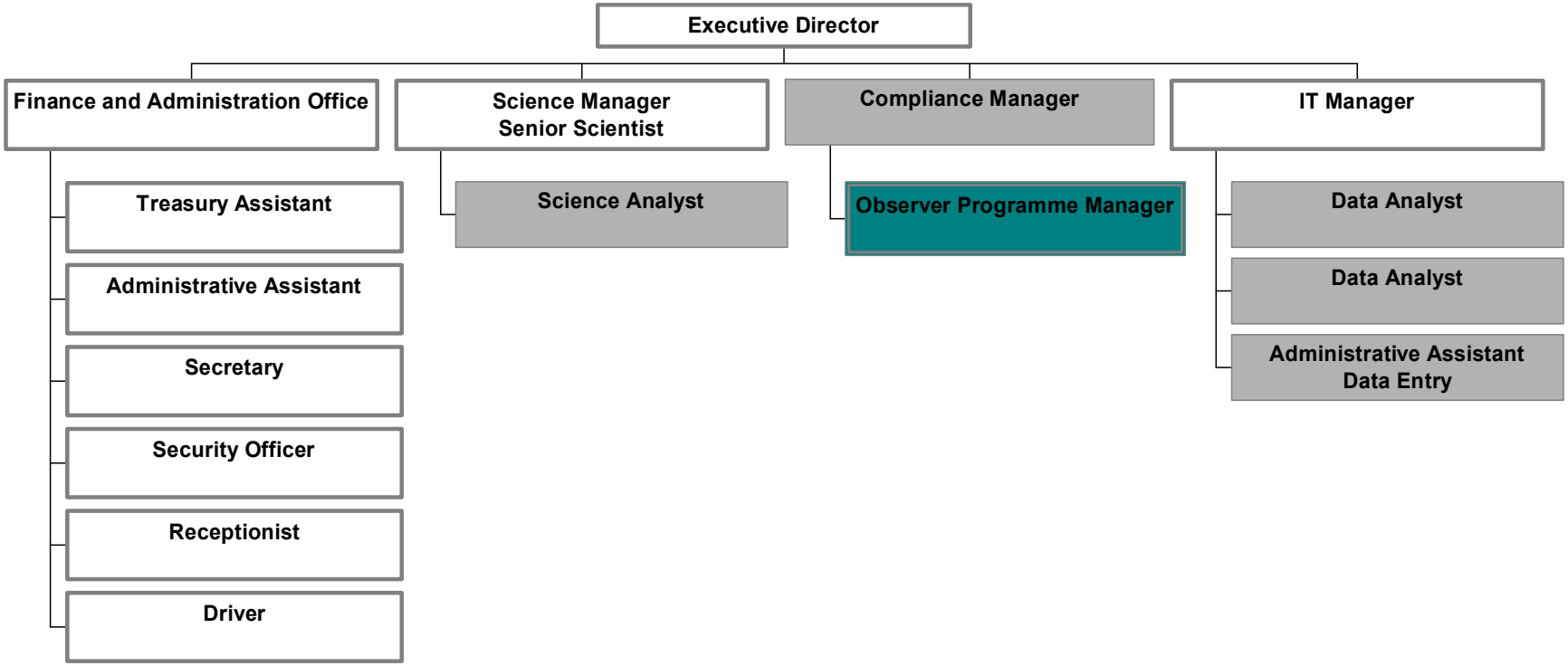
Annex I

PROPOSED SECRETARIAT STRUCTURE: ORGANIZATION CHART



Annex II

PROPOSED SECRETARIAT STRUCTURE: PROVISIONAL STAFFING LEVEL AND PROPOSED GRADE RANGE IN THE FIRST THREE YEARS OF OPERATION

	Summary of functions	*Grade equivalent*		*Year 1*	*Year 2*	*Year 3*
		CROP	*UN*			
Executive Director	Functions as prescribed in the Convention	M	D-1	●	●	●
Finance and Administration Officer	Monitor the budget and financial transactions of the Commission; internal oversight; manage contracts for technical services as necessary; supervisory office administration and personnel management.	K	P-3	●	●	●
Science Manager (Senior Scientist) *	Review of scientific advice to the Commission; Secretary of Scientific Committee; manage contracts for science services, including development of specifications and standards for the provision of contracted science services.	L	P-5	●	●	●
IT Manager (Data Manager)	Manage the IT requirements of the Secretariat, establish and maintain necessary database, network and communications services; ongoing management of service agreements with eternal providers for the provision of data services to the Commission.	L	P-4	●	●	●
Science Analyst	Assist Senior Scientist in analysis of scientific data and preparation of reports to the Commission.	J	P-3		●	●
Compliance Manager	Secretary to Technical and Compliance Committee; provide information and advice associated with the development and ongoing implementation of any regional compliance schemes; manage the Commission's VMS and vessel register either directly or through existing regional organizations and programmes or through commercial service providers.	L	P-4		●	●
Data Analyst	Data analysis (commercial fisheries data)	J	P-2		●	●
Data Analyst	Data analysis (observer and research data)	J	P-2			●
Observer Programme Manager	Manage the Commission's observer programme; provide support to Compliance Manager	J	P-3			●
Total professional staff				***4***	***7***	***8***
Treasury Assistant	record contributions, process payments and assist the finance and administration officer with respect to the monitoring of the budget.			●	●	●
Secretary				●	●	●
Secretary					●	●
Network Administrator	Maintain Commission WAN, LAN and website; user support; software management.			●	●	●
Administrative Assistant / Data Entry	Data entry and assistance to scientific and data management unit			●	●	●
Administrative Assistant / Data Entry	Data entry; assist administration of the Commission's vessel register and the observer programme.				●	●
Security Officer				●	●	●
Receptionist					●	●
Driver				●	●	●
Total GS (locality) staff				***6***	***9***	***9***
Total Staff				**10**	**16**	**17**

Annex III

PROPOSED SECRETARIAT STRUCTURE: INDICATIVE STAFF COSTS IN THE FIRST THREE YEARS OF OPERATION

A: COMMISSION YEAR 1 WITH 10 STAFF

		CROP	UN
Exec. Director	*D1/M*	98,448	148,004
Science manager (Dep.Dir)	*P5/L*	88,831	135,376
Finance and administration officer	*P3/K*	79,269	104,110
IT Manager (data manager)	*P4/L*	88,831	118,540
Treasury assistant	*G6/G*	11,571	10,807
Secretary	*G4/E*	6,902	6,492
Network Administrator	*G6/G*	11,571	10,807
Admin Assistant/Data Entry	*G4/E*	6,902	6,492
Security officer	*G2/C*	3,896	3,785
Driver	*G2/C*	3,896	3,785
Total		**400,116**	**548,199**

B: COMMISSION YEAR 2 WITH 16 STAFF

		CROP	UN
Exec. Director	*D1/M*	98,448	148,004
Science manager (Dep.Dir)	*P5/L*	88,831	135,376
Finance and administration officer	*P3/K*	79,269	104,110
IT Manager (data manager)	*P4/L*	88,831	118,540
Compliance manager	*P4/L*	88,831	118,540
Science Analyst	*P2/J*	61,321	73,216
Data Analyst	*P2/J*	61,321	73,216
Treasury assistant	*G6/G*	11,571	10,807
Secretary	*G4/E*	6,902	6,492
Secretary	*G4/E*	6,902	6,492
Network Administrator	*G6/G*	11,571	10,807
Admin Assistant/Data Entry	*G4/E*	6,902	6,492
Administrative assistant 2	*G4/E*	6,902	6,492
Security officer	*G2/C*	3,896	3,785
Receptionist	*G3/D*	5,103	4,958
Driver	*G2/C*	3,896	3,785
Total		**630,497**	**831,115**

C: COMMISSION YEAR 3 WITH 17 STAFF

		CROP	UN
Exec. Director	*D1/M*	98,448	148,004
Science manager (Dep.Dir)	*P5/L*	88,831	135,376
Finance and administration officer	*P3/K*	79,269	104,110
IT Manager (data manager)	*P4/L*	88,831	118,540
Compliance manager	*P4/L*	88,831	118,540
Science Analyst	*P2/J*	61,321	73,216
Data Analyst	*P2/J*	61,321	73,216
Observer Programme manager	*P3/K*	79,269	104,110
Treasury assistant	*G6/G*	11,571	10,807
Secretary	*G4/E*	6,902	6,492
Secretary	*G4/E*	6,902	6,492
Network Administrator	*G6/G*	11,571	10,807
Admin Assistant/Data Entry	*G4/E*	6,902	6,492
Administrative assistant 2	*G4/E*	6,902	6,492
Security officer	*G2/C*	3,896	3,785
Receptionist	*G3/D*	5,103	4,958
Driver	*G2/C*	3,896	3,785
Total		**709,766**	**935,225**

Note: The following assumptions have been used in compiling the above tables:

- Costs associated with professional Staff P3/K and above have been calculated at dependent rates plus one child receiving maximum child benefits.
- Costs for professional staff P2/J and less are calculated at dependent rate but no provision is made for children.
- For calculation of Post Adjustment in UN scales Apia has been used for the reference.
- For UN scales no housing allowance has been provided as it is assumed that threshold value would not be met.
- Regarding pension, medical and life insurance for UN scales the approach taken by CCAMLR and CCSBT (both of which use ICSC salary conditions) has been taken. That approach requires staff to have pension and insurance and for the organization to contribute 2/3 of costs up to a total maximum level equal to that which would be paid under the UN pension scheme.
- Provision for pension and insurance for UN scales is based upon ICSC pensionable remuneration scales as at 1 Nov 2001.
- Air travel has been calculated on basis of an economy air ticket price of US$3,000.
- Any use of DSA in calculations has used the DSA rate for Apia (US$130)
- Freight calculation is on basis of one international shipping container and 80kg airfreight.
- For general service staff mid-point salaries have been used in all cases.
- For general service staff it is assumed all are locally engaged and have 2 children.

Annex IV

Estimated budgetary requirements of the Commission
(thousands of United States dollars)

		Year 1	*Year 2*	*Year 3*
PART 1				
1	**Staff Costs**			
	Established posts	548.2	831.1	935.2
	General temporary assistance	7.0	7.0	7.0
	Overtime	10.0	10.0	10.0
	Consultancy	60.0	60.0	60.0
	Sub-total	***625.2***	***908.1***	***1,012.2***
2	**Staff travel**	80.0	80.0	80.0
	Sub-total	***80.0***	***80.0***	***80.0***
3	**General operating expenses**			
	Electricity	10.0	10.0	10.0
	Communications	50.0	50.0	50.0
	Office supplies	20.0	20.0	20.0
	External printing	15.0	15.0	15.0
	Library books and supplies	20.0	20.0	20.0
	Audit	5.0	5.0	5.0
	Bank charges	2.0	2.0	2.0
	Entertainment	10.0	10.0	10.0
	Miscellaneous	10.0	10.0	10.0
	Sub-total	***142.0***	***142.0***	***142.0***
4	**Capital expenditure**			
	Vehicle	40.0	0.0	0.0
	Computers	35.0	25.0	25.0
	Furniture and office equipment	35.0	20.0	15.0
	Sub-total	***110.0***	***45.0***	***40.0***
5	**Maintenance of capital assets**			
	Vehicle maintenance	3.0	5.0	6.0
	Computer maintenance	6.0	6.0	6.0
	Insurance	7.0	7.0	7.0
	Sub-total	***16.0***	***18.0***	***19.0***
6	**Meeting services**			
	Annual session of Commission	12.0	12.0	12.0
	Annual session of Committees	15.0	15.0	15.0
	Sub-total	***27.0***	***27.0***	***27.0***
	Sub-total Part 1	***1,000.2***	***1,220.1***	***1,320.2***
PART 2				
1	**Special fund (Article 30)**	42.5	42.5	42.5
	Sub-total Part 2	***42.5***	***42.5***	***42.5***
PART 3				
1	**Science services**	500.0	500.0	500.0
2	**Data management**	500.0	500.0	500.0
3	**Vessel register**	200.0	200.0	200.0
	Sub-total Part 3	***1,200.0***	***1,200.0***	***1,200.0***
TOTAL BUDGETARY REQUIREMENTS		**2,242.7**	**2,462.6**	**2,562.7**

WCPFC Preparatory Conference
Third session
Manila, Philippines
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WCPFC/PrepCon/WP.8
31 October 2002

WORKING GROUP I
(ORGANIZATIONAL STRUCTURE, BUDGET AND FINANCIAL CONTRIBUTIONS)

APPLICATION OF COST RECOVERY PRINCIPLES TO THE PROVISION OF COMMISSION SERVICES

Prepared by the Secretariat

I. INTRODUCTION

1. At the second session of the Preparatory Conference, the Preparatory Conference Secretariat was asked to provide information on the application of cost recovery principles to certain Commission services. The present working paper responds to that request and is intended to supplement paper WCPFC/PrepCon/WP.7.

2. The present paper is divided into five parts covering: (i) scope of application of cost recovery principles; (ii) background information on cost recovery principles; (iii) identifying services that may have their costs recovered; (iv) cost recovery in international fisheries management organizations; and, (v) conclusions.

3. Cost recovery in this paper means the recovery from vessel operators, by the Commission, of certain costs of the Commission's services. The paper attempts to identify the costs of Commission services that can be charged directly to vessel operators. In this context, cost recovery does not relate to the recovery from Commission members of the costs of Commission services. Nor does it relate to any national policies whereby Commission members might seek to recover the costs to them of membership in the Commission from their vessel operators.

II. BACKGROUND

4. Several countries use cost recovery and user charges are used to fund fisheries research, management and monitoring services.[1] Cost recovery and user charges are used to achieve a number of objectives, such as:

[1] Cost recovery regimes are applied to varying degrees for various fisheries management services by a number of the PrepCon participants (Australia, Canada, the FFA member countries in relation to some services provided via the FFA, New Zealand, and the United States of America)

(a) Improving efficiency in the delivery of fisheries research and management services;

(b) Reducing the burden upon government finances; and

(c) Ensuring that society as a whole does not subsidize the activities of the fisheries sector.

5. There is a large body of academic work on the benefits of cost recovery for the efficient provision of fisheries research, management and enforcement services. The theoretical arguments in favour of cost-recovery or user charges are that it improves the incentives within government to provide services in the most cost-effective way. As a monopoly provider of services, it is assumed that few incentives exist for governments to utilize the most cost-effective means to deliver services. Further, government providers of management services may be rewarded via increases in operating budgets even though they demonstrate poor efficiency in the delivery of management services. It is argued that the introduction of cost recovery, combined with a concomitant ability for those paying the costs to be involved in decisions relating to the delivery of services, should create incentives for those services to be provided in a more cost-effective way.

6. In a number of countries where cost recovery has been introduced the primary objective has been to reduce the burden on government finances. In these situations, while cost recovery has been applied for certain services, there has not been an accompanying increase in the level of participation by users in the decision-making process related to the delivery of services. In such situations the economic efficiency gains in the delivery of services that may be expected from the introduction of cost recovery will not be realized. If, however, improving the efficiency of provision of fisheries services is not the primary motivation for the introduction of cost recovery, then this is factor will be of little concern.

7. Where cost recovery is applied in the delivery of fisheries services two alternative approaches have generally been applied to identify whether the government or the sector (or a combination of the both) should pay for the service provided:

(a) The first approach is the concept of avoidable costs, where a sector is charged on the basis that the service is required by the presence of fishing activity. Under this approach, the fisheries sector normally pays a relatively (to the approach below) larger portion of the costs.

(b) The second approach for identifying who should pay is the concept of attributable costs or 'beneficiary pays'. This second principle attributes costs on the basis that those paying receive a benefit from the provision of the service. A normal result of this approach is that the sector pays a relatively (to the approach above) smaller portion of the costs.

Both approaches are applied in the various jurisdictions that currently utilize cost recovery. Often the fiscal imperatives that have driven application of cost recovery make it difficult to identify clearly the extent to which one or other approach has been applied.

8. In this paper, it is proposed, in summary, that the avoidable cost approach to cost recovery be used by the Commission but that the application of this approach is confined to situations where the Commission services are provided at the request of an operator and owing to the existence of a fishing activity.

III. COST-RECOVERY AND THE COMMISSION

9. Within the context of the Commission it is highly unlikely that the efficiency benefits discussed in the above paragraph will have the opportunity to be realized. Those who face the charges applied under a cost recovery scenario (i.e., vessel operators) will have little, if any, influence over how the Commission will deliver its services. That being the case, it is unlikely that adoption of cost recovery within the Commission context will introduce the efficiency gains that may otherwise be expected. It is, however, unlikely that cost recovery would be mooted within the Commission on the basis of achieving an efficiency objective. Instead a more likely scenario is that cost recovery would be applied on the basis of either equity or fiscal objectives.

10. The fiscal objective for introduction of cost recovery within the Commission is clear, and no different to the approach in a number of national jurisdictions applying cost recovery. The Commission would be seeking to minimize costs to the overall membership. As a result, the Commission would pass on the costs of certain services to vessel operators rather than provide for such costs within the assessed contributions of the Commission.

11. The equity objective as a basis for the introduction of cost recovery within the Commission context may at first glance appear less obvious. Some Commission services such as the Commission vessel monitoring programme are only required by certain classes of vessels (those that fish on the high seas in the Convention area). In these situations it can be argued that such services should not necessarily be funded by assessed contributions as this could see members with no fishing activity on the high seas, in this example, supporting a service the need for which is not generated by the activity of their vessels.

12. In the remainder of this section, the following Commission services are discussed using the principles and objectives outlined above:

(a) Science and data services;

(b) Observer services;

(c) Vessel Monitoring System (VMS) services; and

(d) Vessel register services.

A. Science and data services

13. Scientific research and data collection and management are subject to cost recovery within certain national jurisdictions but in such cases there is generally a clear link between operators and the provider of the service. In most cases the service provider is able to identify the beneficiaries of the service and as result costs can be attributed in an equitable and transparent manner.

14. In the area of data and science the Commission does not interact directly with vessel operators. It is the Commission members that interact with the vessel operators in relation to these services. In the case of data it is the duty of the Commission member to obtain all necessary data and information from their vessels and provide this to the Commission. The vessel operator has no clear link with the Commission in relation to provision of data. As a result the Commission is one step removed from the user for the purpose of attempting to recover costs. For this reason, it

is likely to introduce greater administrative complexity and higher costs if these services were to be considered for cost recovery.

15. It is also useful to recall that since the concept of cost recovery was first raised in discussions at MHLC4, there has not been any suggestion to use such a mechanism to fund the costs of core science or data management within the Commission.

16. Since it has not previously been proposed that these services be funded through cost recovery, and because the mechanisms required to undertake cost recovery from vessel operators could be complex (and would likely require considerable resources and cost to implement), it is not suggested that science and data services be considered for cost recovery.

B. Observer services

17. Observer coverage is an area where cost recovery could be applied. However, the degree to which the Commission itself is involved in the recovery of costs associated with the programme will be heavily influenced by the nature of the observer programme that is adopted by the Commission.

18. If the Commission relies on a programme of observer coverage which is provided in large part by existing national and regional observer programmes then the majority of costs associated with the programme will occur not at the Commission level but at the level of the national or existing regional programmes. Recovery of costs will be at the discretion of these programmes. A number of the potential providers of observer programmes already operating in the region apply cost recovery to the services they provide. The observer programmes operated by the Forum Fisheries Agency in relation to vessels operating in the region under the US-Pacific States Tuna Treaty and the Federated States of Micronesia Regional Access Arrangement both utilize cost recovery. A number of national observer programmes in the region also operate cost recovery.

19. If cost recovery is adopted in relation to observer coverage, it should not be difficult to apply. A clear linkage exists between the provider of the service and the person requesting it, as the vessel operator needs to interact with the observer provider in order to arrange for the placement of the observer.

20. Observer coverage is potentially an area where efficiency objectives may be possible to achieve. If the Commission uses existing observer providers as part of the Commission observer programme then users of the service will have the ability to source observers from the most cost-effective provider. It may be that vessels already utilizing observers provided under existing programmes choose to continue to use such observers, as this will minimize other costs to the operator such as the cost of entry into port to uplift a new observer.

C. Vessel Monitoring System Services

21. As in the case of the observer programme, the Commission's vessel monitoring system (VMS) is likely to be a service where direct interaction between the Commission, or the Commission's appointed service provider, and vessel operators is likely to occur.

22. It is unlikely that the Commission will have a need for multiple providers of this service given that the key concept behind the Commission VMS is that of a centralized system. Therefore, introduction of cost recovery in relation to the entire funding of this Commission service is unlikely to generate significant efficiency gains. As previously mentioned, however,

fiscal and equity objectives may be such that the Commission determines that cost recovery for the costs of the Commission VMS is appropriate.

23. The requirement to operate the Commission VMS will be for those vessels that operate on the high seas in the Convention Area. As a result, some members of the Commission not involved in high seas fishing may argue that it is not appropriate for them to bear the cost of the Commission's VMS services when they as Commission members neither utilize the service (except in the broader sense that the service contributes to better conservation and management of a shared resource) nor generate the need for the service to be provided. It is therefore proposed that these services be considered for cost recovery in the future.

D. Vessel register services

24. As with data and science, this is another area of the Commission services where the Commission will not interact directly with vessel operators. The Commission is one step removed from the user for the purpose of attempting to recover costs. It is an obligation of Commission members to maintain a record of the vessels that are entitled to fly their flag and that are authorized to fish in the Convention Area beyond their flag State's waters. Commission members provide the information that is used by the Commission to maintain the Commission register. To introduce a system of cost recovery reliant upon the Commission recovering costs directly from vessels operators could be administratively complex and potentially costly. It is therefore not proposed that vessel register services be considered for cost recovery.

IV. USE OF COST RECOVERY IN OTHER FISHERIES ORGANIZATIONS

25. The use of cost recovery or user charges is a relatively new approach to the funding of services in the resources management area. Only in the last ten to fifteen years have national authorities begun to apply such charges within their own systems and the introduction of such processes even at the national level has not been without controversy. Against this background it is not surprising that there are few examples where cost recovery has been applied in the context of international fisheries organizations.

26. One of the few examples of cost recovery being applied by a Commission secretariat in the area of international fisheries management is within the context of the dolphin protection programme operated by the Inter-American Tropical Tuna Commission (IATTC) under the International Dolphin Conservation Programme (IDCP). Under the IDCP scheme large purse seine vessels are required to carry an observer to collect catch and biological information and to verify that the activities of the vessel have been in accordance with the provisions of the IDCP. The majority of costs for operating the scheme are recovered from vessel operators by way of a levy based upon the carrying capacity of the vessel. The IATTC also funds a portion of the scheme from within the assessed contributions; the level of Commission funding is currently in the order of 30 per cent of the total costs of the scheme.

27. Other examples of cost recovery applying in the context of regional fisheries organizations are generally within the context of a member state providing a service on behalf of the Commission, the delivery of the service having been prescribed by the Commission, and the individual member state determining whether or not user charges are appropriate. An example of this situation occurs in relation to provision of observer coverage under the CCAMLR scheme of international observation. Some CCAMLR members apply cost recovery to the provision of observers on vessels of other CCAMLR members. The approach, however, is not uniform within

CCAMLR and generally requires explicit agreement within the bilateral agreements between the member states involved.

V. CONCLUSION

28. While cost recovery may not be a prevalent form of funding for international fisheries organizations at this time, it is an approach that has received greater acceptance, particularly at the national level, in the last ten to fifteen years. Its use as a mechanism for funding fisheries management services is likely to increase over time.

29. It is unlikely that the application of cost recovery mechanisms by the Commission will bring about efficiency gains in the delivery of most Commission services. The possible exception may be observer coverage if the Commission adopts a programme that provides for existing observer programmes to provide observer services on behalf of the Commission. If the ability to utilize various observer providers exists then vessel operators will be able to choose the most cost-effective provider of observer services given the operator's particular circumstances. The absence of potential efficiency gains in the provision of services should not of itself preclude the possibility of applying cost recovery. A number of other, no less valid, objectives may be served by the application of cost recovery, including fiscal and equity objectives.

30. It is suggested that, in principle, cost recovery be confined to cases where the Commission services concerned are provided at the request of an identifiable person. In such a case, that person should pay of the costs of that service. Using this approach, it is recommended that:

(a) the costs of the Commission's science and data services and the vessel register services are NOT charged to individual vessel operators; and

(b) mechanisms are developed to ensure that the costs of observer and VMS services are charged to individual vessel operators.

31. Clearly, as noted in document WCPFC/PrepCon/WP.7, it is highly unlikely that the Commission would be in a position to implement either a comprehensive regional observer programme or a VMS in the early years of its operation and there remain a great many technical issues to be resolved before any such programmes could come into operation. However, if the Preparatory Conference is able to take a decision "in principle" at an early stage that these services would, in the long term, be funded through cost recovery, it would be possible for both members of the Commission and the fishing industry to begin to consider practical mechanisms for cost recovery. It would also greatly assist the Preparatory Conference in developing budget projections for the early years of the Commission.

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Interim Advice to the Preparatory Conference for the Western and Central Pacific Fisheries Commission (WCPFC)

Review of Ecosystem-Bycatch Issues for the Western and Central Pacific Region

Prepared for

**The Preparatory Conference
For the Western and Central Pacific
Fisheries Commission (WCPFC)**

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Executive Summary

This report provides a review of relevant information on ecosystem and bycatch issues for use by the Commission, taking into account information available from existing bodies. This report presents a review of current thinking on the scientific basis for taking an ecosystem approach to fishery management, previously published ecosystem principles and objectives, and ecosystem issues of particular relevance to pelagic fisheries in the WCPO.

Background

"Ecosystem Management" found formal acceptance at the Earth Summit in Rio de Janeiro in 1992 and was described as: *"a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way."* Application of the ecosystem approach will help to reach a balance of the three main objectives of rational resource management: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. Articles 5 and 6 of the Convention make it clear that ecosystem effects should play a large role in shaping management measures for fisheries in the WCPO.

National strategies

Several Pacific Island countries now have formal fisheries management plans that may include some policies regarding bycatch and ecosystem issues in general. Few, if any, have reached the stage of actually implementing ecosystem provisions in fisheries management. However, on behalf of its member countries, SPC is involved in the types of research that are required to support ecosystem approaches to management.

In addition to the status of ecosystem based fishery management in the island nations, as an example, the report describes national strategies for three non-island nations with interests in the WCPO: Australia, the USA and the UK.

Data and research requirements

Taking into account ecosystem considerations in the management of fisheries requires substantial amounts of data on target species, interactions between target species and other species, food webs, and the direct effects of fishing on non-target species and their habitat. To meet the objectives of the WCPFO Convention will require substantial input into modelling and monitoring of target fisheries and the environment in which they exist.

The most important element of the monitoring program is to determine the measures of the environment that will lead to the most appropriate management action. That is, one must identify the variables of interest, the magnitude of change or difference in those variables that would warrant action and the temporal scale on which management decisions need to be made. For example, managers would ideally prefer to receive feedback on the scale of one to two years concerning how to manage fisheries when faced with a possible impact on a threatened or endangered species, rather than obtaining feedback over a longer period, say 10 years. Information on population abundance is unlikely to provide such information in that time frame, even in the absence of fishing.

Section 2.4.2 of the report reviews existing work being undertaken under two important research programs in the WCPO that provide results that support the development of an ecosystem approach to managing tuna fisheries in this region: The Oceanic Fisheries Program of SPC and the Pelagic Fisheries Research Program of the University of Hawaii.

Ecosystem effects

A conceptual framework for considering the ecosystem effects of fishing must focus on three types of effects:

- incidental mortality of non-target species in fisheries operations;
- indirect effects on food webs; and
- direct effects on habitat.

The western and central Pacific Ocean currently supports the largest industrial tuna fishery in the world, with an estimated annual catches averaging about 1.5 million metric tons over the past decade. All of these fisheries have some level of catch of non-target species (bycatch). A portion of this bycatch is discarded because it has little or no economic value. A portion of the target catch is also often discarded for economic reasons, or because it is damaged, physically too small for efficient processing, or lost because of gear failures during fishing operations. Marine mammals, seabirds, and sea turtles make up a component of the bycatch that varies with gear and area. Section 3.2 of the report provides a detailed review of existing information on bycatch by fishing gears and by target species, including some information on approaches to reducing bycatch.

In considering food web effects, the report explains that adult tunas and billfish are at the apex of pelagic food webs in the WCPO. Much of the concern regarding the effects of fishing on marine food webs stems from targeting on species at lower trophic levels, and particularly prey or forage species on which higher level predators rely, rather than species in the upper levels. however, there is growing body of evidence that changes at the tops of food webs are expressed at all trophic levels in a wide variety of aquatic ecosystems. More work needs to be done to better understand how the effects of removal of higher predators propagate through the food web, but it is clear that the status of these apex predators and their ecological significance can only be known through monitoring of fisheries and diet composition.

Habitat diversity is the most frequently used quantitative measure of biodiversity because habitat can be defined relatively clearly in terms of both physical conditions and biotic components. Loss and/or degradation of habitat is currently recognised as the most critical threat to marine biodiversity. The corollary of this is that prevention of such loss or degradation is considered to be the most effective way of conserving biodiversity.

Enhanced and directed monitoring is an essential element of an ecosystem approach that seeks to take into consideration unintentional, secondary and/or indirect effects of fishing on target species with particular fishing gears. Increased use of observers is the best means currently available of obtaining independent information on catch and bycatch statistics at the species level. Modelling is also required to develop a better understanding of ecological relationships and ecosystem effects, and to explore in advance the effects of different management alternatives and their monitoring requirements.

There is a need to develop target and thresholds measured in ecosystem properties that can be used to guide managers in a similar way to single-species definitions of overfishing.

1 Introduction

During the second session of the Preparatory Conference (PrepCon2), WGII reviewed and gave preliminary consideration to the Commission's needs with respect to:

1. data requirements, including current gaps in data coverage and standards for data collection and management;
2. science, and in particular stock assessment and advice on stock status in the short term and ongoing;
3. research priorities and research planning and coordination;
4. review of assessments, analyses and other scientific work.

WGII established an ad-hoc task group to consider the future information needs to support discussions and progress on matters related to the scientific activities of the Commission. Drawing upon the material from the ad-hoc task group the working group agreed that prior to the next meeting of the working group there should be a review of relevant information on ecosystem and bycatch issues for use by the Commission taking into account information available from existing bodies, including the SCTB Billfish and Bycatch Research Group, and paying particular attention to incidental catches of sensitive species.

In this regard, Working Group II has noted that research on the pelagic ecosystem and on ecosystem-based fishery management is an on-going research priority throughout the world. The Group also noted that these research results will eventually become important in the work of the Commission, but is probably not a priority for the interim period. Nevertheless, it is important to build an information base from which to develop management strategies that will be sensitive both to the effects of fishing on the environment and the effects of the environment on fish productivity.

In this report, we present a review of current thinking on the scientific basis for taking an ecosystem approach to fishery management, and previously published ecosystem principles and objectives, including a selection of national and international policy documents. The remainder of the document considers ecosystem issues of particular relevance to pelagic fisheries in the WCPO, including a review of information available from the SCTB Billfish and Bycatch Research Group on bycatch by gear and species.

Conventional stock assessment tends to focus only on the effects of fishing on target species and does not take explicit account of ecological and ecosystem considerations. By contrast, the ecosystem-based approach recognizes that stocks sit within a food web (almost all species are both predators and prey), that non-human predators of stocks are competitors with fishing, and that the abiotic environment is part of the milieu in which organisms live and fishing occurs.

2 Ecosystem-based management of fisheries

2.1 What is ecosystem-based management?

The phrase 'Ecosystem Approach' was first coined in the early 80s, but found formal acceptance at the Earth Summit in Rio de Janeiro in 1992 where it became an underpinning concept of the Convention on Biological Diversity, and was later described as:

'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.'

Application of the ecosystem approach will help to reach a balance of the three main objectives of rational resource management: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. It is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems.[1]

Similarly, Margalef (in Smith 1994, pg. 8) states "Ecosystems result from the integration of populations of different species in a common environment. They rarely remain steady for long, and fluctuations lie in the very essence of the ecosystems and of every one of the...populations [that comprise the system]".

Modification of the marine ecosystem is an inevitable consequence of the scale of human activity in areas such as fishing and coastal development. Marine fisheries are one of the remaining examples of large-scale human activity involving the direct exploitation of wild animal populations. Fisheries are dependent on the productivity of the ecosystem, and fisheries have an effect on, and are affected by, the supporting ecosystem of the target species. It, therefore, follows that prudent and responsible fisheries management should take account of the profound interactions between fisheries and their supporting ecosystem.

Without human intervention, populations of species exist in the ecosystem in their "natural" state and the "needs" of these populations are met to a greater or lesser extent. Human intervention, such as fishing, modifies the properties of the ecosystem in a variety of ways, such that it may no longer meet the needs of the species that exist within it in the same way as it did without intervention.

It is possible and valuable, however, to conduct fishery management while recognizing ecosystem effects and taking ecological considerations into account. The concept of "rational use" of living marine resources is now widely accepted and enshrined in international agreements, such as the CCAMLR[2] Convention, which aims to take an "ecosystem approach" while allowing fisheries to proceed on a rational basis. Conservation is therefore concerned with how we sustain renewable resources in ecosystems so that future options are maintained[3]. The

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[1] Web site of the Convention on Biological Diversity (http://www.biodiv.org/programmes/cross-cutting/ecosystem/).

[2] Commission for the Conservation of Antarctic Marine Living Resources

[3] The FAO Fisheries Atlas, in its section on 'Basic Principles of Ecosystem Management', states: 'The overarching principles of ecosystem-based management of fisheries...aim to ensure that, despite variability, uncertainty and likely natural changes in the ecosystem, the capacity of the aquatic ecosystems to produce food, revenues, employment and, more generally, other essential services and livelihood, is maintained indefinitely for the benefit of the present and future generations...to cater both for human as well as ecosystem well-being. This implies conservation of ecosystem structures, processes and interactions

question that science needs to answer is, does fishery management limit modification of ecosystem properties, such that the ecosystem continues to support the needs of the species it contains in the way that it did prior to modification?

This immediately and clearly demonstrates the complexity of fishery management taking account of ecological and ecosystem considerations. In order to show how human intervention has modified the ecosystem, and the extent to which this modification compromises ecosystem function, it is necessary to have some way of measuring and evaluating ecosystem function under various states of nature, both with and without human intervention.

Thus, it becomes clear that what is being managed in natural resource contexts is human intervention in ecosystems, not the species or the ecosystems themselves. This has consequences for the terminology that is generally used to describe the process of managing fisheries while being considerate of the needs non-target species in the ecosystem. Frequently the term "ecosystem management" is used, but since we cannot profess to manage ecosystem processes such as regime shifts, changes in food webs, or climate change, this is patently inappropriate. We prefer more accurate terms such as "ecosystem-based approach to management", "fishery management with an ecosystem perspective" or "fishery management taking account of ecological and ecosystem considerations".

The Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem[4] sought to establish a means by which ecosystem considerations could be included in capture fisheries management, and to identify future challenges and relevant strategies. Michael Sinclair, co-chair of the scientific symposium summarized discussion from the scientific symposium (FAO 2001). He noted that although no formal definition of ecosystem-based fishery management had been agreed to, there was consensus that an ecosystem-based fishery management approach contained the following features:

- integrated management of multiple fisheries and other ocean uses within a geographic context;
- incorporation of a broader set of objectives than currently exists; and
- direct management of human activities, rather than the ecosystem itself.

Although it was agreed that additional knowledge on marine ecosystems was needed, the introduction and development of ecosystem-based fishery management should start now and that it could be initiated in both developed and developing countries. He concluded that ecosystem-based fishery management would probably be implemented through an evolutionary, not revolutionary, process and that the precautionary principle was an integral component in the ecosystem-based fishery management approach.

The Reykjavik Declaration stated (FAO 2001), *inter alia*, that while immediate action on particularly urgent problems using a precautionary approach is needed, scientific knowledge needs to be advanced in several areas, including: the sustainable management strategies that incorporate ecosystem considerations; characteristics of relevant marine ecosystems, diet composition and food webs, species interactions and predator-prey relationships, and the role of habitat and factors affecting ecosystem stability and resilience; systematic monitoring of natural variability, and its effect on ecosystem productivity; monitoring of by-catch and discards in all fisheries; fishing gear and practices; and the adverse human impacts of non-fisheries activities.

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through sustainable use. This implies consideration of a range of frequently conflicting objectives and the needed consensus may not be achievable without equitable distribution of benefits.'

[4] October 2001 in Reykjavik, Iceland, http://www.refisheries2001.org/.

2.2 Building a management framework for ecosystem-based management of fisheries

2.2.1 Building on conventional assessment techniques

Conventional stock assessment tends to focus only on the effects of fishing on target species and does not take explicit account of ecological and ecosystem considerations. This conventional view recognizes the biophysical world in which fish stocks exists, the socio-economic world of the fishing community that takes the stock, and the management world in which catch limits and other controls on fishing activity are determined and implemented (Figure 1). However, it does not recognise the potential effects of removals on non-target species, either directly through mortality, or indirectly through food-web relationships. Nor does it consider the effects of fishing gear on habitat, and the knock-on effects of habitat condition on fish productivity. Finally it does not account specifically for environmental fluctuations that may affect stock productivity in a variety of different ways.

Use of conventional single-species management makes the assumptions that:

- stocks can be viewed out of the context of their role in the ecosystem,
- density dependence is the main regulating factor in population dynamics, and
- if one simply knows enough about the vital information of the stock, then it is possible to fully control the trajectory of the stock.

These assumptions are relied upon whether one uses surplus production models, dynamic pool models, stock-recruitment models, Virtual Population Analysis, or other more sophisticated tools.

By contrast, the ecosystem-based approach recognizes that stocks sit within a food web (almost all species are both predators and prey; Pauly and Christensen 1995, Pauly *et al.* 1998), that non-human predators of stocks are competitors with fishing (e.g. Punt 1997, Fryer 1998), and that the abiotic environment is part of the milieu in which organisms live and fishing occurs. Belsky (1993, pg. 229) writes, "The ecosystem model [in the sense of a conceptual framework] is nothing more than a shorthand for holistic or comprehensive ocean management. The mandate for use of this model seeks to force government leaders to apply scientific principles to domestic and international law and policymaking".

Grumbine (1994) provides the following attributes of ecosystem-based resource management:

1. *Interactions between ecological levels*: Management ensures that connections between and across all levels (species, populations, habitats, regions) are taken into account in resolving issues - focus on any one level is inadequate;
2. *Ecosystem boundaries*: Management acts within ecological boundaries and across administrative, political and jurisdictional boundaries;
3. *Maintenance of ecosystem integrity*: Management's focus includes the maintenance of ecological integrity. It has the stewardship of total national biological diversity (genes, species, communities, habitats) and the ecological processes that maintain that diversity, rather than a narrower focus on the benefits to particular sectors or areas;
4. *Data collection*: Management collects information beyond that required to manage individual sectors. It includes an inventory of biodiversity assets, baseline assessments of ecosystem functions, measurements of the interactions of sectors and improved management and use of existing data.
5. *Monitoring of management*: Management uses measurable performance indicators to assess the success or failure of its actions. Monitoring provides feedback that is critical to evaluating and refining management approaches;

6. *Adaptive and precautionary management*: Management acknowledges that, as scientific and other information is necessarily incomplete, actions with poorly understood or difficult to reverse consequences are to be avoided. Adaptive management regards management as a learning process, where incorporating the experience from previous actions and improved knowledge of the system enables managers to adapt to changing levels of uncertainty and to improve progressively.
7. *Inter-agency cooperation*: Management improves inter-agency cooperation because ecological boundaries cross-traditional agency and administrative divides and Commonwealth, State and local government jurisdictions. Managers work together across such boundaries to integrate conflicting legal mandates, management practices and priorities.
8. *Organisational change*: Management recognises that the orientation, structure and modus operandi of agencies that manage ocean uses will be different from sector-based agencies. The differences may be relatively simple arrangements for inter-agency coordination, or more fundamental shifts in lines of accountability, responsibility, organisational orientation, decision-making processes, priorities and operations.
9. *Management of human activities*: Management recognises that human activities are fundamental influences on many marine ecological patterns and processes and are in turn affected by them. Although human activities are the focus of most management actions, they are recognised as being embedded in marine ecosystem functioning.
10. *Values*: Management recognises, accepts and incorporates biodiversity values into all resource allocation processes that could affect the ocean ecosystems, even when scientific and technical knowledge may be insufficient for a full definition of values. Management recognises, however, that human values will play a dominant role in decisions on ocean uses.

A management plan that recognizes ecological and ecosystem effects must be broader and deeper than the conventional world-view, as it attempts to deal with three interlocking goals (Larkin 1996):

1. a sustainable yield of products for human consumption and animal foods;
2. maintenance of biodiversity; and
3. protection from the effects of pollution and habitat degradation.

Furthermore, this approach tends to embrace a greater range of variation and uncertainty. Bakun (1996) and Spencer and Collie (1997) give examples of dome-shaped time series of stocks that include waxing, waning, and crashing stocks. For example, stocks that rose from the mid 1970s to mid 1980s including sardines (Japan, Peru-Chile, California), anchovy (Benguela), and north Pacific groundfish. Stocks in the opposite phase were anchovies (Japan, Peru-Chile, California) and north Pacific albacore. The Gulf of Guinea sardine population expanded in the mid-1970s and has not yet peaked, while the Brazilian sardine and northern cod stocks declined following the mid-1980s.

Most fisheries stock assessment models recognize effects other than fisheries on the population. For example, in standard age structured models, the dynamics that relate the numbers of individuals from one year to the next assume that when fish disappear, a fraction $F/(F+M)$, of the fish are taken by the fishery, and the remaining fraction $M/(F+M)$ of the fish that disappear go to “natural” predators. The choice of $F/(F+M)$ makes an assumption that the effect of the fishery is the same as the effect of all other predators combined; whether this is true is generally unknown.

Depending on the relative levels of F and M and how the model uses them, this approach may contain an implicit allowance for the predators of the target population, even though there is no explicit consideration of predator needs when catch limits are determined (Figure 2). However,

taking ecological and ecosystem considerations into account in fishery management calls for an explicit view of ecosystem effects. The first step beyond the implicit approach is illustrated in Figure 3. Here the status of predators of the target species, which may compete for resources with the fishery, is assessed using quantitative methods. The results of this analysis are fed into the management procedure, but are not integrated with the analysis that focuses on the target species. Similarly, there may be some environmental information that influences decisions at the management level, but again this is outside of the analytical process. The essential characteristic of this stage is that there is no link made between the fishery and its effects on ecosystem properties other than the direct effects on the target population.

The first stage at which the assessment and management process really begins to embrace explicitly the ecosystem approach is illustrated in Figure 4. Here, information from the environment, including non-target species is fed directly into the assessment process, and influences the scientific advice that is provided to managers. The fundamental difference between this stage and that described in Figure 3 is the difference between the population ecology and community ecology views of management. That is, putting the predators in the lowest box in Figure 4 is a more explicit treatment of the community issues.

In the final stage (Figure 5), the environment, target stock, and its predators and prey are integrated in the assessment before the management procedure is used to determine catch limits and other management measures. At the same time, the more complex and less tractable ecosystem problems are included (see Section 2.2.3 for an explanation of more and less tractable ecosystem problems).

It is common to use a number of discreet stages such as these to describe the range of options available to managers between an essentially single species approach and an explicit ecosystem approach. However, in reality, there is a continuum of modifications and adjustments to current thinking and practice that can move the management process towards the more desirable goal of fishery management taking account of ecological and ecosystem considerations (Figure 5). These modifications and adjustments may require substantial time and resources to achieve, not least because our current state of knowledge, and particularly our ability to predict future states of nature and the effects of fishing on them is limited.

All fishery management regimes are at some point along this continuum and are addressing their management goals with varying degrees of success. It is important, however, not to consider current approaches as necessarily wrong simply because they do not take ecosystem considerations explicitly into account. There may be perfectly good reasons why this is either not possible or not necessary, in which case an implicit approach, based on incorporation of uncertainty into the process, is likely to be the best way forward.

2.2.2 Selected published guidance on the ecosystem approach

There is a rapidly growing body of published ecosystem principles and management goals, both in the peer reviewed literature and in national and international resource management policy documents, to guide management of human activities in the natural environment in a way that recognizes ecological and ecosystem considerations.

These can be conveniently organized within a management framework that comprises four levels:

- Ecosystem principles;
- Management goals;
- Strategy required to achieve management goals; and
- Management and scientific activities (including monitoring) in support of implementing management policy

Below we describe some of the previously published material under these four headings, alongside relevant sections of the Convention text.

2.2.2.1 Ecosystem Principles

Aquatic ecosystems should be managed to ensure long-term sustainability of native fish stocks (Olver et al. 1995). This sustainability requires protection of specific physical and chemical habitats utilized by the individual members of that stock and maintenance of its supporting native community. In addition, vulnerable, threatened, and endangered species must be rigidly protected from all anthropogenic stresses.

Harwell (1997) states that we must recognize that humans are part of ecosystems and that they shape and are shaped by the natural system — that is, the sustainability of ecological and societal systems are mutually dependent. Mangel et al (1996) point out that maintenance of healthy populations of wild living resources in perpetuity is inconsistent with unlimited growth of human consumption of and demand for those resources.

2.2.2.2 Management goals and objectives

Pitcher and Pauly (1998) and Pitcher (2000) contend that rebuilding ecosystems, not sustainability, is the appropriate goal for fishery management. Mangel et al. (1996) establish a general rule that, to secure present and future options by maintaining biological diversity at genetic, species, population and ecosystem levels; neither the resource nor other components of the ecosystem should be perturbed beyond natural boundaries of variation.

Grumbine (1994) provides five goals for ecosystem-based management of the oceans within the broader goal of maintaining ecosystem integrity:

1. to maintain, throughout the ocean realm, viable populations of all native marine species in functioning biological communities;
2. to include, within a spectrum of protected areas, representatives of all marine habitat types across their natural range of variation;
3. to maintain ecological processes in all ocean areas, including water and nutrient flows, community and trophic structures, ecosystem linkages and their annual and longer-term natural cycles, and the movement of broad-ranging and migratory species;
4. to ensure recognition that ecosystems are dynamic and that management must be at spatial and temporal scales that maintain the evolutionary potential of marine biological diversity;
5. to accommodate human uses of the oceans and the economic, social and cultural aspirations of people, within these constraints.

Holt and Talbot 1978 assert that the ecosystem should be maintained in a desirable state such that:

1. consumptive and non-consumptive values could be maximized on a continuing basis;
2. present and future options are ensured; and
3. the risk of irreversible change or long-term adverse effects as a result of use is minimized.

Additionally, May *et al* (1979) suggest that populations [other than those at the top of the trophic ladder] should not be depleted to such a level that their productivity or that of other species dependent upon them is significantly reduced.

Goals similar to these are enshrined in Article 2 of the CCAMLR Convention, which, even though it was signed as far back as 1980, remains the one of the most explicit articulations of

ecosystem based objectives in international fisheries agreements in force. Article II of the CCAMLR Convention sets our principles of conservation, including:

- the maintenance of the ecological relationships between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to the levels above those that ensure stable recruitment[5]; and

- the prevention of changes or minimization of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades, taking into account the state of available knowledge of the direct and indirect impact of harvesting, the effect of the introduction of alien species, the effects of associated activities on the marine ecosystem and of the effects of environmental changes, with the aim of making possible the sustained conservation of Antarctic marine living resources.

2.2.2.3 Strategy to achieve management goals

Holt and Talbot (1978) recommend that management decisions should include a safety factor to allow for the fact that knowledge is limited and institutions are imperfect. Also, survey or monitoring, analysis, and assessment should precede planned use and accompany actual use of wild living resources. The results should be made available promptly for critical public review. May, et al (1979) recommend that harvesting levels should be set conservatively to safeguard against the combined effects of environmental variation and harvesting.

In this regard, the WCPFC Convention states that:

- The Commission shall adopt measures to minimise waste, discards, catch by lost or abandoned gear, and pollution originating from fishing vessels (Article 5(e)).

- The Commission shall adopt measures to minimise catch of non-target species, and impacts on associated or dependent species, in particular endangered species (Article 5(e)).

- The Commission shall adopt measures to protect biodiversity in the marine environment (Article 5(f)).

- Non-target species or associated or dependent species for which the status is of concern shall be subject to enhanced monitoring in order to review their status and the efficacy of conservation and management measures (Article 6(4)).

- If a natural phenomenon has a significant adverse impact on the status of highly migratory fish stocks, the Commission shall adopt conservation and management measures on an emergency basis to ensure that fishing activity does not exacerbate such adverse impacts (Article 6(6)).

- The Commission shall adopt, where necessary, conservation and management measures and recommendations for non-target species and species dependent on or associated with the target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened (Article 10(1c)).

2.2.2.4 Management and scientific activities

[5] clarified as meaning that the population size should not be allowed to fall below a level close to that which ensures the greatest net annual increment

As is articulated in many international agreements, Harwell (1997) emphasizes the need to integrate the best science available into the decision-making process, while continuing scientific research to reduce uncertainties. Mangel *et al*. (1996) propose that the full range of knowledge and skills from the natural and social sciences must be brought to bear on conservation problems. In addition, Assessment of the possible ecological and sociological effects of resource use should precede both proposed use and proposed restriction or expansion of ongoing use of a resource.

With respect to management and scientific activities in support of an ecosystem approach to management, the WCPFC Convention refers to:

- Promotion of the development and use of selective, environmentally safe and cost-effective fishing gear and techniques (Article 5(e)).

- Assess the impacts of fishing, other human activities and environmental factors on non-target species, and species belonging to the same ecosystem or dependent upon or associated with the target stocks (Article 5(d)).

- Take into account uncertainties relating to the impact of fishing activities on non-target and associated or dependent species, as well as existing and predicted oceanic, environmental and socio-economic conditions (Article 6(1b)).

- Develop data collection and research programmes to assess the impact of fishing on non-target and associated or dependent species and their environment, and adopt plans where necessary to ensure the conservation of such species and to protect habitats of special concern (Article 6(1c)).

See Section 2.4.1 for additional guidance on monitoring activities.

2.2.3 Mitigating adverse effects of fishing on the ecosystem

When developing a management strategy that encompasses the guidance provided in Section 2.3, it is useful to consider two categories of problems: those that are more tractable and those that are less tractable. The more tractable ecosystem problems generally comprise the direct effects of fishing activity, other than those on the target species, such as bycatch and incidental mortality, and some direct effects on habitat. These direct effects are relatively easy to detect and can often be mitigated through some modification in the way fishing vessels operate or the configuration of the fishing gear. Well known examples include the use of streamer lines to reduce the capture of seabirds in longline fisheries, dolphin escape panels in tuna purse seines, and the use of turtle excluder devices (TEDs) and bycatch reduction devices (BRDs) in shrimp trawls.

The term “more tractable” is not meant to imply that these types of problems and their solutions are straightforward issues. Many of the mitigation techniques now being used have taken several years to develop and are still evolving. What makes these problems more tractable is that the relationship between cause and effect is relatively clear, i.e. it is clear that the fishing activity is the cause of the problem (for example when seabirds are caught on longlines). Although fishery managers have been generally aware of these types of problems for some time, it is only more recently, through the use of enhanced monitoring techniques (e.g. observers), that it has been possible to quantify them and monitor the implementation of viable solutions.

The common thread that identifies the less tractable problems is that they involve indirect effects of fishing, where cause and effect may be several steps removed from each other. This tends to introduce complications into the picture, because the fishery may not be the only, and perhaps not even the major cause of the problem. There is therefore a much higher level of

uncertainty regarding the role played by the fishery in affecting the ecosystem properties in question. Finding ways to mitigate these problems is therefore very difficult.

We can demonstrate the difference between these less tractable problems and the more tractable problems by looking at a single example of an endangered species (e.g. a turtle, marine mammal or bird) with declining population size. The first response in such a situation would normally be to address more obvious issues such as direct mortality. As indicated previously, with modern monitoring tools it is relatively straightforward (although potentially expensive) to determine the extent of direct mortality. Once shown, methods can usually be found to mitigate against it; gear modifications, seasonal closures, closed areas etc. This can be regarded as a tractable problem. However, consider the situation where the direct mortality problem has been solved (and has been shown to be, through monitoring) but the endangered population continues to decline, or at least not recover. It then becomes necessary to look for other explanations, including the possibility that the fishery is having a different, indirect effect that is contributing to the failure of the endangered species to recover. This is clearly a much less tractable problem.

To date, much of the effort applied to incorporating ecosystem considerations into fisheries management has been applied to addressing the more tractable problems. This is, in part, because they are relatively easier to identify, and usually easier to mitigate. However, fisheries management in a truly ecosystem context involves substantially more than just, for example, modifying the operation of fishing gear to reduce undesirable interactions. In its fullest sense, managing for ecosystem considerations must address both more tractable and less tractable problems in a fully integrated sense within the analytical process that generates scientific advice for managers. The less tractable problems are those for which the cause and effect are much more difficult to demonstrate. These include the effects of human intervention (of which fishing may be only part) on complex species interactions that propagate through the food web with unpredictable results, and the influence of regime shifts (both short and long term) on factors that affect the way in which we look at population dynamics, such as natural mortality (for example, due to changes in species interactions), carrying capacity and stock-recruitment processes.

As described in Section 2.2.1, if the goal of management is to transition from an implicit to an explicit treatment of ecological and ecosystem effects of fishing within the management framework, the best way to proceed is in stages of increasing complexity, as illustrated in Figures 3 to 5. In Figure 4, the management process takes into account environmental effects in a more direct fashion in consideration of the status of the target stock and incorporates measures for more tractable ecosystem problems. This is the first level at which the assessment and management process really begins to embrace explicitly the ecosystem approach. In Figure 5, the integration of the environment, target stock, and its predators and prey into the assessment allows the less tractable ecosystem problems to be addressed.

2.3 Selection of national strategies for ecosystem based management of fisheries

2.3.1 Pacific Island Countries[6]

Several Pacific Island countries now have formal fisheries management plans that may include some policies regarding bycatch and ecosystem issues in general. Few, if any reached the stage of actually implementing ecosystem provisions in fisheries management. However, on behalf of its member countries, SPC has considered the types of research that might be required to support ecosystem approaches to management. Two approaches are currently being followed: a

[6] Information for PNG, Vanuatu and Tonga provided by Adam Langley, SPC Scientist

project funded by GEF that aims to describe the ecosystem, concentrating on trophic dynamics, of the so-called western Pacific warm pool large marine ecosystem, and an attempt to model the effects of the environment (particularly ENSO variability) and trophic dynamics on the target tuna species in a "bottom up" type approach (see Section 2.4.2.1).

Within the countries of the Pacific Community, there are currently Tuna Management Plans in place for Fiji, Palau, Papua New Guinea, Solomon Islands, Tonga, and Vanuatu. Most Plans generally include some over-arching goal regarding management of associated and dependent species. The relevant sections from three of the Plans are provided below. These examples are typical of the details of the other Plans although the relative emphasis on the main issues varies between plans, as does the level of detail on specific issues.

Among the management strategies adopted under the **Papua New Guinea** Management Plan, is the need to monitor the impact of tuna fishing on associated or dependent species and, where necessary, adopt measures to ensure sustainable management.

The **Tonga** Plan includes the goal of minimising any adverse impacts of tuna fishing on the marine environment and non-tuna species. The principles established in the FAO Code of Conduct for Responsible Fisheries will be used to guide the design and implementation of strategies under the Tuna Plan, including...promoting management measures that ensure conservation of species belonging to the same ecosystem or associated with or dependent upon the target species. The plan aims to minimise adverse impacts of fishing on marine environment and bycatch species. Regarding the latter, all licensed vessels must provide all required details of the catch of all species and disposal of the catch as part of logbook data. The Tongan Ministry of Fisheries must compile information provided on by-catch species and make this available to industry on an annual basis. The Ministry, in consultation with the TCC, must also implement appropriate measures to control or limit catch of bycatch species, if required. Logbook information must specify whether a catch is taken in association with a Fish Aggregation Device (FAD), whether naturally occurring or artificial, drifting or moored.

In regard to the incidental capture of turtles, seabirds and marine mammals Tonga requires the Master and crew to make all efforts to release all such animals alive. Where possible, sharks that are not utilised for consumption or sale must also be released alive. Finning of live sharks is prohibited.

In **Vanuatu** the Fisheries Division monitors by-catch taken in the tuna fishery through its Observer Programme and catch reporting by all commercial fishing vessels. Where necessary for conservation purposes, the Government of Vanuatu has the option to use management actions that limit or eliminate by-catch, including, but not limited to, imposing closed areas, closing the fishery for certain periods, and limiting gear types. Of particular concern to Vanuatu is the by-catch of billfish and other game species, sharks, marine mammals, turtles, and birds. The by-catch of tuna in fisheries targeting other species should also be monitored these fisheries may also be subjected to management actions to limit tuna interception.

The management of tuna fisheries in Vanuatu also recognises the importance of seamounts and other areas considered to be important for sustaining the biodiversity and natural resources of Vanuatu waters. Closed areas specified in the Schedules to the Tuna Management Plan or other regulations will protect areas that are considered to be of special biological importance.

2.3.2 Australia

The Fisheries Management Act 1991 gives the Australia Fisheries Management Authority (AFMA) the charter to "ensure that the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development and the exercise of the precautionary principle, in particular the need to have regard to the impact of fishing activities on non-target species and the long term

sustainability of the marine environment". The Environment Protection and Biodiversity Conservation Act (1999), which took effect in July 2000, further requires all AFMA managed fisheries to be assessed for their “ecological sustainability”.

AFMA pursues ecologically sustainable development by managing for sustainable fisheries and for the benefit of all current and future users and interest groups. AFMA considers that this requires that fishing occurs in such a way that:

- resources are able to renew themselves;
- the environment can sustain the activities being carried out; and
- the impact of fishing does not threaten biological diversity.

The National Strategy for the Conservation of Australia's biological diversity was agreed by the Commonwealth, State and Territory Governments in 1996. It explicitly recognises and accepts the guiding principles of Australia’s National Strategy for Ecologically Sustainable Development. The National Strategy for the Conservation of Australia's Biological Diversity deals with all of Australia's biodiversity - terrestrial and aquatic — and is the agreed basis for achieving conservation of the biodiversity in Australia's oceans. The goal of this strategy is to protect biodiversity and maintain ecological processes and systems. To achieve this it provides a comprehensive set of objectives and actions. Ward et al. (1997) paraphrased the key objectives of the strategy, as they relate to marine biodiversity, as follows:

- Identify biodiversity components and threatening processes.
- Manage on a regional basis, using natural borders.
- Improve standards of management and protection through integrated management.
- Establish and manage a comprehensive, adequate and representative system of protected areas.
- Strengthen off-reserve conservation of biodiversity.
- Enable threatened species and communities to thrive in their natural habitats, and prevent additional species and communities from becoming threatened.
- Use ecologically sustainable fisheries management practices.
- Use ecologically sustainable management practices for tourism and recreational activities.
- Monitor, regulate and minimise activities that have adverse impacts on biodiversity and be able to respond appropriately in emergencies.
- Control the introduction and spread of alien and genetically modified organisms and the spread of native species beyond their natural range.
- Minimise the impacts of pollution.
- Minimise the impacts of anthropogenic climate change on biodiversity.
- Repair and rehabilitate degraded areas.
- Assess and minimise the potential impacts of government projects, programs and policies on biodiversity.
- Provide the knowledge and understanding needed for effective conservation and management of biodiversity.
- Increase public awareness and involvement with biodiversity and its management.
- Implement the National Strategy for the Conservation of Australia's Biological Diversity within established time frames.

Regarding implementation, according to Ward et al. (1997), in 1997 the existing legislative, organisational and administrative arrangements for management of the oceans in Australia were fragmented and lacked a strategic and integrated approach to conserving the ocean's biodiversity. To be effective and accountable, a major shift from the current independent management by sectors was required. It was recommended that the new ocean management arrangements must include overarching comprehensive regional objectives for biodiversity, integrated into regional ecosystem-based management within a national framework and incorporated into sectoral arrangements.

2.3.3 United States

The Magnuson-Stevens Fishery Management and Conservation Act of 1996 (M-S Act) required that the National Marine Fisheries Service (NOAA Fisheries) prepare a report to Congress on the issue of ecosystem-based management. The Report concluded (NMFS 1999) that the key to an effective ecosystem approach is to fish more conservatively: "The depressed condition of many U.S. stocks is related primarily to unsustainable levels of fishing effort, rather than ecosystem effects. With few exceptions, scientists understand the levels of fishing effort required to produce sustainable yields, but fishery managers are challenged by a highly politicized process to exceed those levels for short-term gains. Setting maximum sustainable yield and optimum yield conservatively, and respecting these conservative goals in the face of political and economic pressure is essential in any ecosystem approach."

The Report pointed out that single species or species complex management should continue as a basic tool for the foreseeable future. However, this necessary approach is not sufficient to implement an ecosystem approach. The report recommended the development of a Fisheries Ecosystem Plan (FEP) that would mimic the existing Fishery Management Plans under which U.S. fisheries are currently managed. The FEP would have the following components:

1. Delineate the geographic extent of the ecosystem under consideration. This will include an evaluation of the land-water interface as well as circumscribing the most important spatial relationships amongst species

2. Develop a conceptual model of the food web. This can often be done, but has difficulties because the same individual, at different times in its life plays different roles in the food web. Pitcher and Hart (1982, pg. 37) show how herring interact with different members of the plankton, depending upon the age of the individual herring. In other cases, the sheer numbers of species involved makes creating a food web difficult. For example, the eastern Bering Sea fishery involves more than 15 species of flatfish, 20 of rockfish, and 4 of roundfish, plus squid (Francis *et al*. 1988, pg. 190). One solution, consistent with Fager's notion of communities as recurrent groups, is to focus on species assemblages (e.g. Rothschild *et al*. 1997, pg. 148). Another is to draw webs of increasing complexity (Mangel 1988, pg. 90-91). This task needs to focus on the primary interactions between the fishery and components of the food web and the possible interactions that might provide feedbacks to the primary interaction (see Yodzis 2000).

3. Describe the habitat needs of different life history stages of the organisms in the "significant food web" and how they are considered in conservation and management measures.

4. Calculate total removals -- including incidental mortality -- and show how they relate to standing biomass, production, optimum yields, natural mortality, and trophic structure.

5. Assess how uncertainty is characterized and what kind of buffers against uncertainty is included in conservation and management actions.

6. Develop indices of ecosystem health as targets for management.

7. Describe available long-term monitoring data and how they are used. At this stage, an evaluation of habitat condition, oceanographic variability, potential confounding influences (e.g. terrestrial, freshwater, waste disposal) and scales of interactions among these factors need to be described and the overall status of the system related to the targets for management.

8. Assess ecological, human, and institutional elements of the ecosystem that most significantly affect fisheries. Based on the recent experience in other fora, attention needs also to be given to evaluation of the spatial and temporal manifestations of

effects. This is required to verify that the assessments, management decisions and future monitoring activities account for the types of effects that might arise and whether the management system is able to respond to these before irreversible changes occur.

The North Pacific Fishery Management Council, one of the eight regional fishery management councils established under U.S. fisheries legislation, established an Ecosystem Committee in 1996. This committee has developed a draft policy for ecosystem-based management of North Pacific fisheries, based on principles and elements of ecosystem management from the scientific literature (e.g. Grumbine 1994, Mangel *et al*. 1996; Christensen *et al*. 1996). The following draft was reported in Witherell et al. (2000), and to date has not changed (Witherell pers.comm.)

Definition:

Ecosystem-based management, as defined by the NPFMC, is a strategy to regulate human activity towards maintaining long-term system sustainability (within the range of natural variability as we understand it) of the North Pacific, covering the Gulf of Alaska, the Eastern and Western Bering Sea, and the Aleutian Islands region.

Objective:

Provide future generations the opportunities and resources we enjoy today.

Goals:

1. Maintain biodiversity consistent with natural evolutionary and ecological processes, including dynamic change and variability.
2. Maintain and restore habitats essential for fish and their prey.
3. Maintain system sustainability and sustainable yields of resources for human consumption and non-extractive uses.
4. Maintain the concept that humans are components of the ecosystem.

Guidelines:

1. Integrate ecosystem-based management through interactive partnerships with other agencies, stakeholders, and public.
2. Utilize sound ecological models as an aid in understanding the structure, function, and dynamics of the ecosystem.
3. Utilize research and monitoring to test ecosystem approaches.
4. Use precaution when faced with uncertainties to minimize risk; management decisions should err on the side of resource conservation.

Understanding:

1. Uncontrolled human population growth and consequent demand for resources are inconsistent with resource sustainability.
2. Ecosystem-based management requires time scales that transcend human lifetimes.
3. Ecosystems are open, interconnected, complex, and dynamic; they transcend management boundaries.

2.3.4 United Kingdom

The UK Joint Nature Conservation Committee (JNCC)[7] considers that a fully comprehensive ecosystem-based approach would require taking account of, *inter alia*, all the interactions the target fish stock has with predators, competitors and prey species; the effects of weather and

[7] The JNCC is the UK Government's wildlife adviser, undertaking national and international conservation work on behalf of the three country nature conservation agencies English Nature, Scottish Natural Heritage and the Countryside Council for Wales

climate; the interactions between fish and habitat; and the effects of fishing on species and habitat (JNCC 2002). Such complete understanding of ecosystems is unlikely to be achieved, and there is a need for pragmatism. Ecosystem-based management is not an instant replacement for traditional fisheries management - rather it should be seen as an evolution of the existing systems.

Therefore, progress towards the goal is likely to be made in an incremental way rather than overnight and it is possible to identify the steps towards, and desirable characteristics of, ecosystem-based fisheries management, including:

1. The identification of the relevant ecosystems, and their boundaries and characteristics;
2. The agreement of management objectives for each ecosystem. These should encompass wider ecosystem factors and not just the target stock, and all stakeholder groups should be involved in their development;
3. Long-term management objectives should be developed as well as short to medium-term objectives;
4. The establishment of sustainability indicators (including reference points, targets and limits) and the accompanying monitoring;
5. A decentralised regional approach to fisheries management in EU waters should be adopted enabling management measures to be taken that are appropriate to biologically distinct areas. These could include technical measures, spatial management (including closed areas), effort-related controls and systems of access rights;
6. Their should be better tailoring of research and information provision to support the ecosystem approach, including better knowledge of ecosystem interactions, and of fishing-related impacts, and also improved monitoring bycatch and discards to include information of non-commercial bycatch;
7. Application of Adaptive Management and the Precautionary Principle given the degree of uncertainty and dynamics of the ecosystem;
8. An effective enforcement capability.

Furthermore, fisheries management should not be seen in isolation from the wider management of the marine environment. Over time, fisheries management will need to become much better integrated with other sectors of marine management (JNCC 2002).

2.4 Data and research requirements

2.4.1 General guidance

Taking into account ecosystem considerations in the management of fisheries requires substantial amounts of data on target species, interactions between target species and other species, food webs, and the direct effects of fishing on non-target species and their habitat. For example CCAMLR, an organisation with perhaps the longest track record in ecosystem based management, has established the CCAMLR Ecosystem Monitoring Programme (CEMP), the results of which are analysed and discussed by the Working Group on Ecosystem Monitoring and Management (WG-EMM)[8].

To meet the objectives of the WCPFO Convention will require substantial input into modelling and monitoring of not just target fisheries, but the environment in which they exist. An ecosystem approach to management requires the following components:

1. Specification of clear operational objectives, including performance criteria for evaluating management procedures and actions. Examples of such objectives include:

    - species-oriented objectives (for example, by how much can the probability of collapse of the stock be altered?);
    - habitat-oriented objectives (for example, how much habitat is required to remain unaltered?);
    - trends or shifts in state variables (for example, what deviations in environmental state variables can occur before considering the system has changed from its current state and a re-evaluation of the monitoring programme and catch controls is required?); and
    - process-oriented objectives (for example, how much change in ecosystem productivity can be tolerated before changes in the distribution of production between the fishery and the ecosystem need to be made?)

2. Prospective evaluation of the management procedures, which includes fishing controls, monitoring, and decision rules for altering fishing controls or monitoring, to determine those which satisfy the performance criteria.

The discussion above highlights the need to monitor different aspects of the predator-prey system to determine the role of fishing in causing changes to ecosystem properties. A carefully designed monitoring program can also be used to determine the extent to which fishing may need to be reduced to achieve recovery of populations, and to signal when changes to fishing controls may be required.

[8] CEMP has two central aims: (1) to detect and record significant changes in critical components of the ecosystem to serve as a basis for conservation, and (2) to distinguish between changes due to harvesting of commercial species and changes due to environmental variability. To meet Aim 1, selected life history parameters such as abundance, distribution, feeding, reproduction, growth and condition are monitored for designated predator species, which are likely to reflect changes in the availability of harvested prey species, such as krill. Currently, monitored species include crabeater and Antarctic fur seals, four species of penguins, the black-browed albatross and two species of petrels. Monitoring is carried out by Member states at specially designated sites. To contribute towards Aim 2, prey species, environmental factors, and the links between these and predators are monitored. To mitigate against the difficulties imposed by the high level of complexity of the ecosystem, CCAMLR has adopted a strategic modelling approach. This uses computer simulation as a key tool in setting scientific priorities and developing management options. The aim is not to develop a comprehensive ecosystem model, but rather to develop simpler models for strategic purposes, which capture important features of the ecosystem, whilst recognising the multiple linkages, which exist between components.

Ideally, the scale and resources applied to a monitoring program are commensurate with the value of the fishery and the program provides the information necessary for making decisions that are "correct" within the acceptable bounds of making Type I and II statistical errors. In fisheries terms, these errors are translated, respectively, into those that cause a reduction in fishing when it was not justified (Type I) and those that cause environmental harm when fishing should have been more effectively controlled (Type II). The precision of monitoring (replication) needs to be such that these errors are kept within acceptable bounds.

The most important element of the monitoring program is to determine the measures of the environment that will lead to the most appropriate management action. That is, one must identify the variables of interest, the magnitude of change or difference in those variables that would warrant action and the temporal scale on which management decisions need to be made. For example, managers would ideally prefer to receive feedback on the scale of one to two years concerning how to manage fisheries when faced with a possible impact on a threatened or endangered species, rather than obtaining feedback over a longer period, say 10 years. Information on population abundance is unlikely to provide such information in that time frame, even in the absence of fishing.

2.4.2 Selection of existing research programs

2.4.2.1 Oceanic Fisheries Program of SPC

The Tuna Ecology and Biology (TEB) section of the OFP undertakes analyses to understand the biological parameters and the environmental processes that influence the productivity of tuna and billfish populations. Biological investigations focus on tuna and billfish age and growth, on tuna movement and behaviour as observed from classical or electronic data archiving tags, and on tuna and billfish diet in a more general study devoted to the food web of the pelagic ecosystem. Besides the field sampling and laboratory analyses, mathematical models are developed to understand the environmental determinants of tuna fishery production, including impacts of climate fluctuation (El Niño Southern Oscillation, Pacific decadal Oscillation and global warming). There is also increasing interest in other components of the ecosystem which supports the tuna fishery, and impacts of fishing on them.

SPC has two complementary approaches that are also strongly linked to stock assessment modelling:

- A GEF project, now extended with a project funded by the Pelagic Fisheries Research Programme[9], titled "*Trophic structure and tuna movement in the cold tongue-warm pool pelagic ecosystem of the equatorial Pacific"* [10] (Allain V., Olson R., Galvan Magaña F., Popp B., Fry B.), has the objective of describing the trophic structure of the ecosystem, both in term of species interactions (diet analyses) and transfer of energy through the trophic levels (isotope analyses). Results will be used in ecosystem modelling.

- A one-dimensional ECOPATH-ECOSIM model will use the diet analyses results while the spatial SEPODYM model will use the isotope results. This latter model has been developed to investigate the environmental (climate) effects on the spatio-temporal dynamics of tuna and associated species and their fisheries.

These different studies are linked to a more general framework defined as the "Oceanic Fisheries and Climate Change Project (OFCCP)[11] of the international GLOBEC program. Started in 2002, the goal

[9] http://www.soest.hawaii.edu/PFRP/biology/biology.html, Joint Institute for Marine & Atmospheric Research, School of Ocean and Earth Science and Technology, University of Hawaii at Manoa, Honolulu, Hawaii 96822 USA, Program Manager Dr John Sibert.
[10] http://www.spc.org.nc/OceanFish/Html/TEB/EcoSystem/foodweb.htm
[11] http://www.spc.org.nc/OceanFish/Html/TEB/Env&Mod/OFCCP.htm , Contact: Patrick Lehodey, Oceanic

of the OFCCP is to conduct simulations with ecosystem models that include the main tuna species, using an input data set predicted under a scenario of climate change induced by greenhouse warming. This should lead to the first tentative understanding how greenhouse warming will affect, at the ocean and global scales, the abundance and productivity of marine populations in the pelagic ecosystem, focusing on the major exploited species and fisheries, by a real coupling between atmospheric, oceanic, chemical and biological processes. Potential feedbacks from the changes in the pelagic ecosystem, and socio-economical consequences will be investigated to propose adaptation measures for the future.

Four major components have been identified to achieve the objectives of the project:

- Monitoring the upper tropic levels of the pelagic ecosystem

It is proposed in the present project to use existing technologies, and also to develop new instrumentation for monitoring the upper trophic levels of the pelagic ecosystem. Observation will combine both extensive studies at ocean basin-scale and intensive studies in some sub-areas and key sites. Extensive studies aim at building ocean data sets for micronekton biomass and large pelagics biomass or individual records, using acoustic (micronekton biomass), sonar (tuna biomass), and electronic tracking (individuals) devices. Intensive studies will focus on important processes and behavior (e.g., prey-predator interaction, habitat, schooling and aggregation of tunas, reproduction, composition and dynamics of micronekton, etc).

- Food web structure in pelagic ecosystems

Production at higher trophic levels (usually exploited species) depends on the production at lower levels (bottom-up control) and may be modulated by the physical forcing and the structure of the marine food webs. Ecological concepts suggest for instance that the structure of the food web can be controlled by the biodiversity within the system and/or by higher predators (top-down control). However, concerning pelagic ecosystems, there is very little observation to illustrate such controls. In association with the data collected by the monitoring component of this project, it is essential for modelling the pelagic ecosystem to identify the functional groups, how energy and matter flow through these groups and how they are affected by physical and biological changes as well as by human activities (fisheries).

Two kinds of analyses will be helpful in this task. A classical approach based on the study of stomach contents to establish the prey-predator interactions, and the more recent isotope-ratio approach, that appears a promising way for describing the energy transfer through the food web. The success of these approaches also relies on the multiplicity of studies in different regions of the ocean(s) and in different periods of time. The comparative study necessitates developing standardized protocols, reference databases and controlled laboratory experiments. Retrospective analyses based on the numerous diet studies published or still in archives of many institutes should be also encouraged. Information obtained from these studies and from the monitoring will be used in individual energetics models (IBM), mass-balance models (ECOPATH-ECOSIM) and spatial ecosystem models (SEPoDyM [12]).

SEPoDyM (Spatial Environmental POpulation DYnamic Model) has been developed to explore the underlying mechanisms by which the environmental variability affects the pelagic ecosystem and tuna populations. The model is a basin-scale, 2D coupled physical-biological interaction model, combining a forage (prey) production model with an age structured population model of targeted (tuna predator) species and their fisheries. The model contains environmental and spatial components used to constrain the movement and the recruitment of tuna. The skipjack tuna population and fisheries are the first described in SEPoDyM. Three different fishing gears are described: purse-seine, pole-and-line and a group of mixed domestic gears from the Philippines and Indonesia. A total of ten fleets are represented, each with separate catchability coefficients.

Fisheries Programme, SPC, Noumea, New Caledonia

[12] http://www.spc.org.nc/OceanFish/Html/TEB/Env&Mod/Sepodym.htm

An age-based selectivity function is used for each gear. Fishing effort of each fleet vary by month and in space, with a one degree square resolution except for the Philippine and Indonesia fleets that provide data aggregated by five degree square, and year. The catchability coefficients are scaled to obtain estimated catches at the same level as observed catches. Results of the simulation are compared to observed fishing data by fleets, such as total monthly catch, spatial distribution of catch, and distribution of length frequencies.

- Modeling from ocean basin to individual scale

Close association between observation and modeling has been a permanent guide in conceptualization of this project. Recognizing the diversity of space-time scales processes overlapping in pelagic ecosystem dynamics, a second key idea is that a general framework is needed to integrate studies at different time and space scales with potential connections between them. There is a large range of models represented in the project covering global to individual scales. At global or basin scales, predictions from three different coupled physical-biogeochemical models will be used over the period 1950-present. The global model will also provide predictions for the next century using a scenario of greenhouse warming. These predictions will be used to run the ecosystem models of upper trophic levels on which the economical and social analyses rely. At least one of the physical-biogeochemical models should provide prediction at high resolution in one or a few identified sub-regions where intensive process studies are conducted. A similar approach will be investigated for the spatial ecosystem models. This would allow connections between large and small scales (low and high frequencies) processes and testing the mechanisms that control the system when moving from one scale (frequency) to the other.

- Socio-economical impacts

The interannual climate variability due to ENSO events has important socio-economic impacts on tuna fishery and industry at the global scale, that in turn may affect the tuna populations (e.g., higher/lower catch) and the pelagic ecosystem (by-catch, interaction between species, top-down effects). Several causes drive the fluctuations of tuna stocks and catches. While economic rather than biological reasons limit (today) the catch increase of the most productive tuna species (skipjack) in the Pacific, the intense fishing effort on the highly valuable bluefin tuna, perhaps combined with environmental forcing, has led to a decline in this population from the 1960's to the eighties.

Interactions amongst species and between the multiple and diverse fisheries, as well as potential cascade effects in the ecosystem raise important questions for management with potential strong socio-economic repercussions. Based on existing model, investigations of these interactions and effects occurring with ENSO would help to assess the vulnerability and impacts in a scenario of global warming, and to eventually propose adaptations and/or mitigation measures for the future.

2.4.2.2 Pelagic Fisheries Research Program

The following project summaries, which have relevance to the management of pelagic fisheries in the WCPO, were downloaded from the PFRP web site.

- *Investigating the Life History and Ecology of Opah and Monchong in the North Pacific.*

P.I.: Michael Seki, National Marine Fisheries Service, Honolulu Laboratory

Two miscellaneous pelagic fish species incidentally caught by Hawaii longline vessels targeting bigeye tuna are the opah and monchong. Particularly valued by restaurants, these exotic, deep-water fishes are generally harvested in small, but nevertheless significant quantities. Since

neither are targeted species, these fishes have historically been poorly studied and as a result available information pertaining to the biology and ecology of this resource are virtually non-existent.
The primary objective of this project is to investigate and define some of the fundamental life history and ecological characteristics of the opah and monchong resource in the North Pacific. The focus will be on the opah (moonfish), *Lampris guttatus*, and on two species of monchong (pomfret): the bigscale pomfret (*Taractichthys steindachneri*) and the lustrous pomfret (*Eumegistus illustris*). Project researchers will gather biological and ecological data through:

- a comprehensive collection of shoreside data and biological sampling,
- analysis and merging of fishing industry (NMFS observer and logbook, North Pacific driftnet, auction), research and environmental datasets, and
- capturing depth information collected from vessels of opportunity.

- *Trophic Ecology and Structure-Associated Aggregation Behavior in Bigeye and Yellowfin Tuna in Hawaiian Waters.*

P.I.: Dr. Kim Holland, Hawaii Institute of Marine Biology, University of Hawaii. Dr. Richard Young, Department of Oceanography, University of Hawaii. Dr. Richard Brill, National Marine Fisheries Service, Honolulu Laboratory. Dr. Laurent Dagorn, IRD HEA, France

The focus of this project is to elucidate the role of feeding ecology in the aggregation (schooling) behavior of tunas, especially those aggregations found around floating logs, FADs (fish aggregation devices) and seamounts. Not only are tuna aggregations a dominant component of worldwide tuna fisheries but understanding the biology of aggregation phenomena also has direct pertinence to stock assessment and to understanding the ecosystems that support the fishery. From a stock assessment perspective, the contributions of aggregations to the overall distribution of tuna biomass are central to estimating the size of the resource and the movements of the population. The occurence of several different types of tuna aggregation within close proximity to Hawaii, combined with the existence of other pertinent fishery research projects, provides an ideal setting for the research into the interaction between feeding behavior and aggregation behavior.

Two general approaches will be used: 1) "traditional" examination of stomach contents of captured tunas, and 2) analysis of different tuna tissues for stable isotopes of carbon and nitrogen. These methods provide wide-ranging and complimentary approaches for understanding trophic ecology of tunas.

- *Distributions, Histories, and Recent Catch Trends with Six Fish Taxa Taken as Incidental Catch by the Hawai'i-based Commercial Longline Fishery.*

P.I.: Dr. William A. Walsh, National Marine Fisheries Service, Honolulu Laboratory. Dr. Samuel Pooley, National Marine Fisheries Service, Southwest Fisheries Science Center

Project investigators will conduct comprehensive statistical research into the geographical distributions, histories, and recent catch trends of six fish taxa sometimes characterized as non-target or incidental catch in the Hawaii-based commercial longline fishery. An understanding of species distributions is needed to assess the likely effects of management policies (e.g., area closures) instituted in response to requirements of conservation law. Accurate catch rate histories are required to evaluate fishery trends and stability of individual species, and to identify statistical relationships between catch rates and extrinsic factors that might be masked (or created) by false or erroneous data. The fishes of interest to this project together comprised almost half (43.4%, numerical basis) of the catch of the Hawaii-based longline fleet from January 1991 through December 1998 (Walsh, unpublished data):

- Blue shark (*Prionace glauca*)
- Dolphin fish, or "mahi mahi" (*Coryphaena hippurus*)
- Blue marlin (*Makaira nigricans*)
- Moonfish, or "opah" (*Lampris guttatus*)
- Wahoo, or "ono" (*Acanthocybium solandri*)
- Three species of pomfrets: Pacific pomfret (*Brama japonica*), bigscale pomfret (*Taractichthys steindachneri*), and dagger pomfret (*Taractes rubescens*)

Project researchers will examine data gathered by the Hawaii Longline Observer Program (National Marine Fisheries Service), logbook records submitted by the Hawaii-based longline fleet, and sales records from public fish auctions conducted at the United Fishing Agency (UFA) in Honolulu, Hawaii. As in previous data comparison studies researchers hope to identify the specific factors that distort historical catch trends (e.g. mis-identification, under-reporting). Researchers also plan to develop a generalized additive model (GAM) to address the issues of possible data inaccuracies.

- *Pop-Off Satellite Archival Tags to Chronicle the Survival and Movements of Blue Sharks Following Release from Longline Gear*

P.I.: Dr. Michael Musyl, Dr. Richard Brill, National Marine Fisheries Service, Honolulu Laboratory.

Recent advances in electronic data storage technology have made it possible to construct devices that allow the long term (months to years) recording of detailed records of the vertical and horizontal movements of fishes. These "archival" tags are carried inside the fish and record data on geographical position, ambient light levels, swimming depth and temperature (internal and external). Further design refinements have also made it possible for fine-scale environmental and daily geolocation data to be downloaded via satellites with "pop-off" satellite archival tags (PSATs). These PSAT tags are released from the fish at a specified period and/or threshold depth, allowing for immediate access to recorded time-series data.

During the course of this three-year project, researchers plan to attach PSATs on up to 50 blue sharks captured and released from commercial longline gear. Researchers anticipate the majority of sharks to be tagged on dedicated longline cruises aboard the NMFS research vessel *Townsend Cromwell* and while onboard commercial longline vessels. Researchers will attach hook timers to longline droppers to record the duration of hooking prior to subsequent release. Researchers hope to have tags equipped with a "safety valve" feature to insure that collected data are not lost. This will consist of a glass link that will crush at a precisely specified depth. That is, if the fish sinks and dies, at about 800 m (before the float implodes), the glass link will break and allow the tag to float to the surface.
Project researchers' plan to use PSATs to study the horizontal and vertical movements, and distribution of blue shark is intended to provide critical knowledge in three areas:

1. Daily horizontal and vertical movement patterns, depth distribution, and effects of oceanographic conditions on the vulnerability of blue sharks to longline fishing gear.
2. The survival rates of blue sharks captured and released from commercial longline gear.
3. Stock identification, dispersal, and possible fishery interactions.

- *Developing Biochemical and Physiological Predictors of Long Term Survival in Released Blue Sharks and Sea Turtles.*

P.I.: Dr. Christopher Moyes, Department of Biology, Queen's University, Kingston, Ontario

For catch-and-release sports fishing and non-retention of commercially caught non-target species to be justifiable management options, there must be a reasonable likelihood that released animals will survive long term. At present, there is no scientific basis for making this prediction for any

large pelagic fish. Therefore, even when recreational anglers and commercial fishermen practice good catch-and-release fishing, high rates of delayed mortality are a distinct possibility. Tag-and-release programs are important tools for assessing post-release survival, but they can be difficult and expensive. Management strategies intended to minimize mortality of non-target species depend upon accurate information on post-release survival. Fisheries researchers recognize that many factors (e.g., size, sex, reproductive state, water temperature, fight time, fishing gear) may influence the likelihood of mortality. Consequently, conclusions from tag-and-release studies are rarely extrapolated to other species.

Rather than assessing how many fish survive, project investigators will research why fish die. Project researchers believe that delayed mortality is probably not a direct result of immediate metabolic pertubations but rather more likely due to irreversible cellular damage. Researchers will analyze tissue and blood samples from blue sharks and sea turtles to develop a set of diagnostic tools to assess the biochemical and physiological status of fish caught by longline gear on scientific cruises. Once a set of tools has been developed researchers will be in a position to use blood samples to assess a broad spectrum of parameters which collectively address the extent and nature of tissue damage in response to physiological stress of capture. These tools will be used in combination with pop-off satellite archival tag data to establish correlates of survival or mortality. Researchers plan to develop such tools to maximize lateral transfer between species and anticipate eventually applying these techniques on other commercially important game fish and non-target species.

- *Population Biology of Pacific Oceanic Sharks.*

P.I.: Dr. Christofer Boggs, National Marine Fisheries Service, Honolulu Laboratory

Concerns about the status of shark populations are becoming an important issue in the management of the Hawaii-based longline fishery. Sharks are important and valuable catches in both foreign and U.S. longline fisheries targeting tunas and billfishes. The practice of finning sharks has also increased in recent years. In general, conservation organizations are seeking to ban shark finning and commercial shark harvests while commercial fisheries will resist these efforts. The need for a better understanding of the population biology of oceanic sharks is necessary before management decisions can be made. Stock assessments are required for all oceanic shark species under the U.S. Pelagic Fishery Management Plan for the central and western Pacific.

The objectives of this project are to address important information gaps regarding oceanic shark species (oceanic white-tip, blue shark, short-fin mako, thresher). Researchers on this project will review current literature and consult with other shark researchers to identify gaps in knowledge of life history and ecology of oceanic sharks impacted by North Pacific longline fisheries. The project P.I. will analyze shark biological samples and also share samples with other shark researchers. The project P.I. will obtain more information on: age and growth, reproduction and maturation, distribution and migration, and trophic relationships. Analysis of shark fins will be conducted to estimate sizes of sharks caught. P.I. will analyze effects of longline gear (hook depth, soak time) for application to catch-per-unit-effort analysis. Measurements of swimming depth, geographic movements and mortality rates of sharks will be obtained through the application of pop-up satellite transmitting archival tags (PSTATs).

3 Ecosystem issues of concern for tuna fisheries in the Western and Central Pacific

3.1 A conceptual framework

Although Articles 5 and 6 of the Convention make it clear that ecosystem effects should play a large role in shaping management measures for fisheries in the WCPO, there is not much language indicating what specific types of action might be taken. Article 5(e) refers to the promotion of the development and use of selective, environmentally safe and cost-effective fishing gear and techniques, but in order to meet the objectives set out in Articles 5 and 6, it may also be necessary to make adjustments to target species management measures (i.e. those in Article 10(2)) to avoid deleterious effects on the ecosystem.

As indicated in Section 2, a conceptual framework for considering the ecosystem effects of fishing must focus on three types of effects:

- incidental mortality of non-target species in fisheries operations;
- indirect effects on food webs; and
- direct effects on habitat.

Fishery management must also consider the effects of environmental fluctuation on the ability of models to predict the future effects of fishing on target populations. For example, environmental regime shifts may have profound effects on assumptions regarding growth rates, migration patterns and stock-recruitment relationships.

The following sections discuss these issues in more detail and specifically review their relevance to tuna fisheries in the WCPO.

3.2 Bycatch

The western and central Pacific Ocean currently supports the largest industrial tuna fishery in the world, with an estimated annual catches averaging about 1.5 million metric tons over the past decade. Skipjack is the most important of the four major tuna species in the fishery, accounting for well over half of the catch by weight, followed by yellowfin, bigeye and albacore. Purse seine gear is responsible for about 60% of the catch, with longline gear being the next most important, followed by pole-and-line gear and then troll gear.

All of these fisheries invariably have some level of catch of non-target species (bycatch). A portion of this bycatch is discarded because it has little or no economic value, and, if retained, would take up storage capacity best used for the more valuable tuna species. A portion of the target catch is also often discarded for economic reasons, or because it is damaged, physically too small for efficient processing, or lost because of gear failures during fishing operations.

Bycatch occurs in all fisheries. The term, however, has many meanings. Concerns with the terminology used to identify bycatch or discards were addressed at a bycatch workshop in Newport, Oregon (U.S.A) in February 1992 (McCaughran 1992). Alverson et al. (1994) used the following definition as proposed at the Newport Workshop:

- <u>Target Catch</u> The catch of a species or species assemblage that is primarily sought in a fishery, such as shrimp, flounders, cods;

- <u>Incidental Catch</u> Retained catch of non-targeted species;

- Discarded Catch That portion of the catch returned to the sea as a result of economic, legal, or personal considerations;

- Bycatch Discarded Catch plus Incidental Catch.

The amount and impact of the bycatch varies considerable by gear and area. At the time of the study by Alverson *et al*. (1994)[13], bycatch in the west and central Pacific Ocean area (FAO Areas 61 and 71) ranked as the third highest of the FAO statistical areas. Discards in shrimp fisheries (Thailand, Indonesia, and the Philippines) accounted for more than 50% of this total. However, discards associated with harvests of tuna added significantly to the regional total. The tuna-bonito-billfish fisheries annually discarded an estimated worldwide total of 0.7 million tons of a 4.2 million ton catch during the early 1990s. This is about 15% of the total catch, or 18% of the target catch. At the time, however, it was considered that this figure might increase as the proportion of fishing effort applied to purse seine sets on logs or other fish-aggregating devices (FAD) increases. While dolphin removals on log/FAD sets are much lower than when setting on dolphin pods, aggregate removals of other species are much higher.

The western and central Pacific tuna fishery takes over one hundred species, including commercial swordfish and striped marlin, sharks and various fish species (SCTB 1998). Incidental catches of marine wildlife, such as seabirds and turtles are reported to be rare in most areas, but those reports need to be verified. Many species, such as mahi mahi and wahoo, are important sources of food and income to Pacific island communities. Several Pacific island nations are also interested in developing their own commercial game fishing industries.

According to SPC[14], there remains a large degree of uncertainty about the impacts of tuna fisheries on by-catch species and pelagic ecosystems. However, it is obvious that these impacts have increased very significantly over the last 50 years as tuna fisheries worldwide have expanded their catches and effort by orders of magnitude. The problem is that we have little or no information on the relative abundances or biomasses of many components of the pelagic ecosystem.

Observer programs, conducted by regional and national organizations, have developed over the last two to three decades. In general, these observer programs were created to monitor activities such as compliance with licensing agreements and restrictions on incidental catches. In addition to providing information required for meeting those objectives, observer programs provide essentially the only reliable, detailed information on catches discarded at sea. Based on such observer programs in the WCPO the main by-catch species of tuna fisheries are billfish, sharks, Escolar, Wahoo, Mahi mahi, Rainbow runner, and Opah.

Looking to the future, the development of an alia fleet[15], or future activity in the surface fishery, may result in the increased deployment of fish aggregation devices (FADs). Scientific research has shown that FADs can lead to an increase in the level of by-catch when fishing for tuna species.

Bailey et al. (1996) have conducted the most extensive review of bycatch in the Western and Central Pacific tuna fisheries based on log sheet data, observer information, and published and unpublished reports. Catch records available from log sheets for the period 1978-1992 ranged from nearly complete to seriously incomplete. Observer activity during this period was very low, so Bailey et al. also used information from increased observer activity in 1993 and 1994.

[13] http://www.fao.org/DOCREP/003/T4890E/T4890E00.htm#TOC
[14] http://www.spc.org.nc/OceanFish/Html/TEB/Bill&Bycatch/index.htm
[15] locally built aluminum catamarans

In the following sections we have summarized information on bycatch by gear, and bycatch by target species. The information in these sections comes primarily from Bailey et al. (1996), updated where possible.

3.2.1 Bycatch by gear

3.2.1.1 Purse seine fisheries

Data from SPC's Regional Tuna Fisheries Database (RTFD), from reports of observers' trips, from private logbooks, and from personal experience of the purse seine fishery in the WPO indicated an extremely low incidence of self-reported bycatch or of discards of bycatch and target catch (Bailey et al 1996). From 1975–1991, RTFD data showed that the total reported catch of this fishery exceeded 2.2 million mt, of which 0.21 per cent was listed as bycatch, 0.06 per cent as discarded bycatch and 0.24 per cent as tuna discards; for 1992, these values were 0.92 per cent, < 0.01 per cent and 0.3 per cent, respectively.

Poor reporting of bycatch and discards available from log sheet data and generally low observer coverage precluded definitive estimates of bycatch. However, observer-reported bycatch rates can provide some indication of bycatch levels in the WTP. For 1992, the bycatch level was determined, from observer data and ranges of CPUE by fleet, to be between 0.35 and 0.77 per cent of the total catch for school sets and between 3.0 and 7.3 per cent for log sets. Sets on floating objects produced the largest amounts, highest incidences and greatest variety of fish and other species, and accounted for more bycatch than school sets. The most common species in log sets, by frequency of occurrence, are the silky shark, mackerel scad, rainbow runner, mahi mahi and ocean triggerfish. However, Bailey et al. noted a trend for larger and more technologically advanced fleets to move away from log sets and concentrate on school fish. As the bycatch of school sets is less, bycatch levels may have decreased in more recent years.

Unlike the Eastern Tropical Pacific, evidence suggests that purse seine vessels in the western Pacific do not set on dolphins. Large baleen whales are occasionally set on in the WTP, but are easily able to escape alive and unharmed. Available data provide no evidence of seabirds taken in purse seines. Purse seines occasionally catch marine turtles but evidence suggests that the vessels release the majority of turtles alive. Marlin is uncommon in school sets, but relatively common in log sets. However, the overall catch is minor compared to the marlin catch of longliners operating in the same area. Purse seiners occasionally set on whale sharks in the WTP and reportedly injure these animals when attempting certain release techniques; no data on the magnitude of the injuries is available.

Purse seine vessels discard tuna irregularly and unpredictably, depending on setting practices of individual fishing masters, size of the catch, conditions during the set and condition of fishing gear. Considerable non-reporting of such discards for the investigation period makes estimates of discards impractical. However, three-quarters of reported tuna discards were made because the tuna were too small (< 3–4 lb or < 1.4–1.8 kg) for canning. Similarly, 76 per cent of reported tuna discards came from log and FAD sets.

The FAD fishing technique (sets on natural logs, anthropogenic flotsam, man-made FAD) has been introduced in different purse seine tuna fisheries for different reasons: to improve catch rates, minimize fishery expenses, to comply with "dolphin-safe" policy etc. Such fishing tactics may produce relatively high bycatch rates (Joseph, 1994; Bailey et al., 1996; Hall, 1996, 1998; Anon., 1997). Effort data from the U.S. purse seine fleet indicate an initiation of FAD fishing in 1995 (Figure 6). The number of sets on FADs increased substantially between 1998 and 1999 and dropped in 2000 as vessels tried to maximize catch value (by fishing on free swimming schools that tend to contain larger fish and higher proportions of yellowfin tuna) due to record low cannery prices for small tunas (< 7.5 lb).

Aside from the problems of increase bycatch, Alverson *et al*. (1994) suggested that increased deployment of FADs and increased fishing on FADs could cause resource problems for tuna species. ICCAT has suggested that the introduction of FADs could have changed the behavior of skipjack schools and the migrations of this species in the eastern Altantic (ICCAT 2001). Prior to the use of those devices, the free schools of mixed species were much more common. Due to the large number of FADs, and the tendency of skipjack to associate with floating objects, substantial behavioral changes, including movement patterns, may occur. These behavioral changes may imply changes in the biological parameters of this species as a result of the changes in the availability of food, predation and fishing mortality. Skipjack caught with FADs are usually associated with small yellowfin (20%) and with small bigeye (17%) and also with other small tuna species. A comparison of size distributions of skipjack between periods prior to and after the introduction of FADs show, in the eastern Atlantic, an increase in the proportion of small fish in the catches and a decline in the total catch in recent years in some areas.

Bailey *et al*. noted that improvements to log sheet forms could make recording bycatch and discard data easier, although the problem of non-reporting of bycatch and discards will continue, as this type of information is provided on a voluntary basis. No form of enforcement would likely overcome these problems. Only a scientific observer program aimed at collecting accurate and representative data from all fleets involved would determine the true extent of the occurrence. An observer program would also provide necessary biological data such as species composition of the total catch.

3.2.1.2 Longline fisheries

As with the purse seines, under reporting and non-reporting generally prevented accurate estimates of bycatch and tuna discarding for the longline fleet (Bailey et al. 1996). The descriptions of billfish distribution, annual and seasonal catch rates by area, indications of size frequency by area and catch estimates appeared to be reasonable accurate on the log sheets. For the period 1978 to 1992, the RTFD contains a total WTP catch for the longline fishery of over 14,000,000 fish, of which 7 per cent was listed as bycatch, less than 0.1 per cent as discarded bycatch and less than 0.1 per cent as target tuna discards. However, available observer data give some indication of the likely levels of bycatch and discards.

As the estimated level of longline bycatch is highest, both in terms of the proportion of the total catch and weight of the catch, ecological concerns would most likely relate to longline bycatch. Historically, longline effort in the Pacific has changed little over the last 20 years, fluctuating between 450 and 600 million hooks (Figure 7) (Lewis 1999). Given some assumptions concerning stability of per-hook impacts over time, any ecological impacts of longlining on bycatch species are likely to be of long standing, and may be difficult to detect retrospectively (even if time series catch/effort data were available).

Australia and New Zealand have required releasing live billfish since the early 1980s, and data on survival rates of marlin taken by longline vessels suggested that releasing live billfish is a viable option, although there was some concern in regard to the enforcement of this requirement Bailey et al. 1996). Misidentification of billfish species appeared to occur in some WTP fleets, which would require additional work to ensure correct species identification on log sheets.

The catch of shark in the WPO constituted a large proportion of the total catch, but longline fisheries did not generally report shark catch on log sheets because it was not a part of the commercial catch. In spite of poor coverage, observer data provided a better indication of species breakdown. Blue shark *(P. glauc*a) appeared to be the most common shark species taken in the WPO longline fisheries, although oceanic white-tip and other *Carcharhinus* species were also prevalent in WTP catches. Australia has made some effort to increase the reporting of shark by providing a shark log sheet supplement for foreign fishing vessels, although the problems of misidentification of species and non- and under-reporting would reduce accuracy of log sheet data. Sharks have a high potential survival rates after release.

Limited observer data indicated little problem with longlines for bycatch of turtles, seabirds, or marine mammals. Incidental catches of skipjack and other non-target tuna species occurred throughout the WTP. Discarding of skipjack occurred variably between areas and fleets. Little was known about the exploitation levels of species other than billfish, shark and non-target tuna species. As in the purse-seine fishery, target tuna discards were an irregular and unpredictable feature of the longline fishery. The two major reasons for tuna discard were (i) small size and (ii) damage by sharks or marine mammals. Reporting of catch of the more commercially important species, such as wahoo and mahi mahi, could be improved by suitable changes in the format of catch log sheets. As with purse seines, only an observer program will obtain necessary biological data and provide information on non-reporting.

3.2.1.3 Pole and line fisheries

The pole and line fisheries depend on live bait that the vessels carry. Because the vessels target premium skipjack and have an incentive to conserve bait, tuna discard levels in the various pole-and-line fisheries in the WPO are likely relatively minor (Bailey et al. 1996). The RTFD indicated that bycatch from the pole-and-line fisheries in the WPO was less than one per cent, although the real level may be slightly higher, and likely varied with the type of school association. Bycatch levels were higher for pole-and-line fisheries based on FAD networks or in areas close to islands, reefs, or archipelagic waters than for high seas pole-and-line fisheries. A scientific observer program for the pole-and-line fisheries could provide more information on the bycatch levels and discard practices by fleet and school association. However, the small proportion of bycatch taken by commercial pole-and-line vessels and the substantial observer coverage needed suggest that observer effort would be best directed to the other more important fisheries of the WPO.

3.2.1.4 Troll fisheries

The troll fishery targets albacore primarily in the temperate waters around New Zealand or along the subtropical convergence zone (STCZ), in contrast to the tropical fisheries previously discussed (Bailey et al. 1996). Bycatch in the troll fishery was typically less than five per cent of the total catch on New Zealand grounds and less than one per cent in the STCZ. Much of the bycatch was taken to the north of the main fishing grounds as vessels moved to and from ports at the beginning and end of seasons and during unloading calls.

A total of 25 species of bycatch have been recorded in the fishery, including three species of shark, six species of scombrid, and two billfish species. Skipjack was the most common species on both grounds, often comprising over 70 per cent of bycatch. Most vessels discarded low market value bycatch species, but often retained more valuable species such as yellowfin tuna.

Troll gear generally caught only small billfish such as shortbill spearfish, as most escaped by breaking the troll gear. Seabirds often showed an interest in troll lures but the few caught were mostly released alive with little apparent damage. There were no records of marine reptiles or mammals being taken with troll gear.

Albacore weighing less than about 4 kg (57 cm) were often shaken off the hooks and returned to the sea alive. The limited information available on this deliberate ‘high grading’ of catch suggests that less than two per cent of a season’s catch were discarded because of size. The extent of the injuries suffered by the drop-offs and small discarded fish and their chances of survival are unknown. Negligible numbers of albacore were discarded because of shark damage.

A seasonal troll fishery for albacore, using identical gear and similar vessels to the South Pacific fishery, has existed in the North Pacific since the early 1900s. Although this fishery has been extensively researched and documented there appears to be no substantive literature on bycatch and discards. It appears from a NMFS observer programme that the fishery has a similar range of

bycatch species to the South Pacific, including skipjack, yellowfin, shortbill spearfish, striped marlin, rainbow runner, and mahi mahi, and discarding of small albacore is known to occur.

3.2.1.5 Handline fisheries

Handline fisheries typically had less than one per cent of the total catch as bycatch (Bailey et al 1996). Shark species appeared to be the predominant bycatch discarded; due to the nature of this fishing method, the survival rate of any discarded bycatch is expected to be high. Seabirds, marine mammals or marine reptiles were not reported taken by handline fisheries in the WPO.

There is not enough information available to determine the level of tuna discards (due to poor quality) in the Coral Sea handline fishery, however, as there is some control on the rate of catch landed on deck (and hence the rate of subsequent processing/storage before deterioration), it is expected that this would be minimal. There are no quantitative data available on the level of tuna discards due to shark damage, although these are expected to occur from time to time. A scientific observer program for the handline fisheries could provide more information on the bycatch levels and discard practices. However, the small proportion of bycatch taken by commercial pole-and-line vessels and the substantial observer coverage needed suggest that observer effort would be best directed to the other more important fisheries of the WPO.

3.2.2 Bycatch by target species

Because of poor reporting of the catch of bycatch species on log sheets (which realistically is unlikely to improve, even in the long term), and the relatively low observer coverage, the total catch of the range of species can only be estimated, with considerable uncertainty surrounding existing estimates. Estimates do give an indication of the relative importance of bycatch and identify the species involved. The true catch rates of bycatch species over time is lacking, and the biology and population dynamics of nearly all species are poorly known such that impacts of fishing on bycatch species cannot presently be assessed (Williams 1997).

3.2.2.1 Sharks and rays

Compared to bony fishes, sharks are susceptible to overexploitation since they generally mature at a late age, have low fecunditites, long gestation periods, and are long lived (Graves et al 1999, Smith et al. 1998, Castro et al. 1999). Pelagic sharks and rays are a common bycatch of the WTP longline and purse seine fisheries, but very few data have been collected at the species level to enable insights into their distribution and abundance to the level that has been achieved for the target tuna species in the WTP. Observer data collection has provided a breakdown of elasmobranch species taken in these fisheries, with at least 16 species observed in the longline fishery and at least 10 species observed in the purse seine fishery.

Blue shark (*Prionace glauca*) is the most commonly caught species during commercial longline operations in the Pacific (Bigelowe et al. 1999). As many as 150,000 blue sharks are captured per year (Ito 1995), but the 1.6 blue shark per 1,000 hooks rate of catch (Figure 8) is significantly less than that reported in temperate longline fisheries (Williams 1997). For example, a catch rate of 10.4 blue shark per 1,000 hooks was calculated from data collected by observers monitoring vessels in the southern bluefin tuna *(Thunnus maccoyi*i) fishery off the southeast coast of Australia (Stevens 1992). Catch rates from observer data suggest that, for the WTP longline fisheries, silky shark are taken at about half the rate of blue shark, and oceanic whitetip are taken at about one quarter the rate of the blue shark.

Blue shark are incidental by-catch and are often discarded after removal of their fins to satisfy increasing demand primarily from the Asian market. There has been a dramatic increase in the numbers of blue sharks finned by the Hawaii-based longline fishery; from 977 sharks in 1992 to 58,444 sharks in 1998 (McCoy and Ishihara, 1999). As a result, blue shark by-catch and finning practices have emerged as important fisheries management issues. Shark finning, and the

commercial by-catch of sharks in general, are also coming under intense scrutiny by several non-governmental environmental organizations (NGOs).

Blue sharks are also probably the widest ranging shark species. They appear to make extensive and complex migrations, but movement patterns across seasons are not well documented. Because blue sharks are both ubiquitous and highly mobile, effective resource management, equitable resource allocations, and the population assessments upon which these are based, depend on a thorough understanding of long-term horizontal movement patterns. Data on movement patterns of pelagic fishes have traditionally been obtained either by analysis of catch statistics, tag and release studies, and direct observation of the movements of individuals carrying ultrasonic (usually depth sensitive) transmitters. Although all three methods can be effective, all have limitations in the quality of data that can be obtained (Musyl and Brill, abstract of current project under the Pelagic Fisheries Research Program: *Pop-Off Satellite Archival Tags to Chronicle the Survival and Movements of Blue Sharks Following Release from Longline Gear*,

The predominant shark species observed in the WTP purse seine fishery are the silky shark and the oceanic whitetip shark (Figure 9, Williams 1997). However, earlier observer work did not give priority to shark species identification and hence the shark species breakdown in the purse seine fishery is less clear than in the longline fishery at this stage. Nonetheless, it is apparent that only a very small percentage of the purse seine catch is made up of shark (around 0.15% by weight, according to observer data), which is a much lower rate per operation than for longline gear. The breakdown of shark species taken in the WTP purse seine fishery provides an interesting comparison with shark taken in the eastern Pacific Ocean (EPO) purse seine tuna fishery (Hall and Williams 1998). There are no observer reports of the blacktip shark *(Carcharhinus limbatu*s) in WTP purse seine fisheries, but this species is by far the most commonly encountered shark in the EPO purse seine fishery. The catch rate for sharks, in general, appear to be higher in the EPO than in the WTP purse seine fishery.

Observer accounts show that the fate of sharks and rays varies from fleet to fleet, from vessel to vessel within the same fleet, and may even vary within the same vessel trip (Williams 1997). The fate of sharks and rays taken in WTP longline fisheries is certainly more complicated that the common belief that all sharks have their fins removed and the trunks discarded. Certain species (e.g. pelagic stingray) have no economic value at all and hence are discarded whole. The fate of other shark species provides some insight into their economic value, with, for example, the trunk of the silky shark (retained in 45.8% of observed catches) apparently more valuable than the trunk of blue shark (retained in only 5.4% of observed catches). However, there have been reports that discarding practices may not be related to the species of shark taken and may change from day to day, for example, when storage space becomes critical towards the end of a trip. Williams (1997) reports that vessels retain sharks for consumption by the crew, and as food for live bait.

3.2.2.2 Billfish

Some billfish, notably swordfish and striped marlin, may be secondary or even primary target species in some longline fisheries (Lewis 1999). Target swordfish fisheries for example exist in Hawaii, Chile and more recently, eastern Australia, and most longline fisheries retain varying amounts of billfish for commercial sale, especially striped marlin. Black marlin and sailfish are more often discarded, but the degree of retention varies greatly amongst fleets. A recent OFP examination of longline billfish catches in the WCPO area (Williams and Bigelow, 1998) outlines some of the real difficulties in obtaining billfish estimates, but suggests that the 1995 catch for the four main species may have been of the order of 25,000t (44% swordfish, 26% blue marlin, 28% striped marlin and only 2% black marlin). Sailfish and spearfish were not included in the estimates. To this can now be added recent information on the Taiwan domestically based offshore longline fleet, which takes about another 7,000t of billfish (blue marlin 4,850t, swordfish 1,400t, sailfish 300t, black and striped marlin ~ 250t each). The WCPO billfish catch is now estimated as in excess of 32,000t.

3.2.2.3 Other fish species

The array of 40 or more fish species taken as bycatch in purse seine and longline fisheries (Lewis 1999) is diverse, and includes some of considerable commercial value and recreational fishing interest (e.g. wahoo, mahi mahi, opah,) or food value (e.g. rainbow runner, pomfret, mackerel scad, amberjack, escolar), whilst many others would seem to have little value in any context, other than components of the ecosystem (e.g. lancet fish, triggerfish). The catch and biology of nearly all these species, with exceptions of a few species such as mahi mahi, wahoo, is virtually unknown. The catch of mahi mahi by the Taiwan domestically based offshore longline fleet of over 6,500t p.a is noted.

3.2.2.4 Marine Turtles

Marine turtles are taken as bycatch in longline and purse seine fisheries in the WCPO. Bycatch in other fisheries such as pole and line and troll is considered to be non-existent. Incidental take of marine turtles is of particular concern due to their declining numbers and poor population status. All marine turtles are designated under the U.S. Endangered Species Act (ESA) as either threatened or endangered. The breeding populations of Mexico olive ridley turtles are currently listed as endangered, while all other ridley populations are listed as threatened. Leatherback turtles and hawksbill turtles are also classified as endangered. The loggerhead turtles and the green turtles are listed as threatened (note the green turtle is listed as threatened under the ESA throughout its Pacific range, except for the endangered population nesting on the Pacific coast of Mexico). These five species of marine turtle are highly migratory, or have a highly migratory phase in their life history, and therefore, are susceptible to being incidentally caught by fisheries operating in the Pacific Ocean.

In February of 2002, the Western Pacific Regional Fishery Management Council (U.S., NOAA) convened an international western Pacific forum to disseminate information and to promote greater regional collaboration for research and management of Pacific sea turtle populations[16].

According to Brogan (2002)[17], incidental catch in the longline fishery occurs when opportunistic-feeding marine turtles encounter baited longline hooks or when they are accidentally entangled with the longline gear. Turtle mortalities, when they occur, are directly related to entanglement or hooking with the longline gear and typically result from drowning. Marine turtles that are hooked or entangled not long before being hauled on board normally survive. Statistics on the life status of the marine turtle encounters varies by area and no conclusions can be drawn from the available data at this stage. Most of the turtles encountered by the Hawaii based longline fishery are released alive (see Appendix 1). Nevertheless, there is still a possibility that these turtles will die due to the interaction with the fishing gear. The U.S. Government uses a range of mortality probabilities, depending on the details of the interaction as recorded in the observer data (e.g. how the turtle was hooked, or entangled). Research is continuing in this area to refine estimates of post release mortality.

Observer-reported encounters clearly show that tropical areas have more turtle encounters. Of the various factors thought to affect the level of marine turtle encounters in the WTP longline fishery, the depth of set appears to be the most important. Analysis of available observer data suggests that the bait used, and whether the gear is set in the water during the day or night, does not have as marked an effect as do the strategies to set the longline gear shallow or deep.

Brogan (2002) provides a very preliminary estimate of 2,182 marine turtle encounters per year in the WTP longline fishery has been determined from available data, of which an estimated 500–600 are expected to result in mortality given the current level of awareness in this fishery. This estimate, however, is expected to have wide confidence intervals since observer coverage has

[16] http://www.wpcouncil.org/protected.htm
[17] http://www.wpcouncil.org/seaturtle/Pages%2072-114.pdf

been very low (< 1%). Data on catches of turtles, marine mammals and seabirds for the Hawaii based longline fleet is provided in Appendix 1.

Brogan (2002) explains that marine turtle encounters in the purse seine fishery appear to be more prevalent in the western areas of the WTP. The main factor affecting marine turtle encounters in the WCPO purse seine fishery is set type. Animal associated, drifting log and anchored-FAD sets have the highest incidence of marine turtle encounters, compared to drifting FAD and sets on free-swimming schools (unassociated sets).

Brogan (2002) provides a very preliminary estimate of 105 marine turtle encounters per year in the WCPO purse seine fishery that has been determined from available data. It is expected that less than 20 of these encounters would result in mortality given the current level of awareness in this fishery. As with the WTP longline fishery, this estimate has wide confidence intervals since observer coverage is less than 5%.

Measures suggested by Brogan (2002) that have the potential to mitigate turtle bycatch and mortality include (i) the introduction and adoption by Pacific Island countries of a formal mechanism to advise all (longline and purse seine) fishing fleets of their responsibilities regarding the live discard of protected species, and (ii) the introduction of initiatives focussing on crew awareness and training in regards to reducing marine turtle mortalities.[18]

The U.S. government has taken substantially more stringent action to protect endangered and threatened turtle populations, including the total prohibition of longlining for swordfish north of the equator. Other restrictions apply to longline vessels targeting tunas. A complete list of restrictions on the U.S. based longliners is provided in Appendix 2.

3.2.2.5 Marine mammals

Endangered species of cetacean that have been observed in the Western Pacific include the humpback whale, sperm whale, blue whale, fin whale and sei whale. In addition, one endangered pinniped, the Hawaiian monk seal, occurs in the region.

There is little evidence that dolphin-associated sets are made by purse seiners in the SPC area (Lewis 1999). There a few records of pilot whales being encircled during log sets in some areas. Sei whale and whale shark (not a mammal) sets are more common in equatorial areas, but these very large animals are usually released unharmed. Marine mammals may occasionally be entangled in longline gear, but there appear to be few examples of actual hooking by longline gear. False killer whales and pilot whales, on the other hand, are seen as serious pests, as they systematically strip target tuna from the longlines, but are rarely if ever caught.

3.2.2.6 Seabirds

According to Lewis (1999), unlike the situation in more temperate areas, catches of seabirds by longline gear are rare in the tropical and sub-tropical areas of the WCPO. This is mainly because the bird species most commonly involved in interactions with longlines in temperate areas (e.g. albatross, petrels) are rare or absent from tropical areas. However, the Hawai‘i-based longline fishery results in the annual mortality of thousands of protected black-footed and Laysan albatross that nest on the Northwestern Hawaiian Islands[19]. Seabirds follow longline vessels and dive on the baited hooks, become hooked and subsequently drown. It is estimated that between 1994 and 1999, an average of 1,330 Laysan albatross *Phoebastria immutabilis* and 1,743 black-footed albatross *Phoebastria nigripes* were killed in the Hawai‘i-based longline fishery each year.

[18] See for example the US Guidelines for handling hooked sea turtles at http://swr.ucsd.edu/piao/ghhst.htm
[19] Final Environmental Impact Statement, Pelagic Fisheries of the Western Pacific Region, NOAA Fisheries, Dept. of Commerce, U.S. Government. http://swr.ucsd.edu/piao/eisdocs.htm

The average annual incidental catches of black-footed and Laysan albatross in the Hawai‘i longline fishery (based upon NMFS statistical analysis) represent about 0.45 and 0.06 percent of the total estimated populations of these species, respectively. Data collected by US observers show that when Hawai‘i-based longline vessels target swordfish the incidental catch of seabirds (0.758 bird catch/set) is far higher than when vessels target tuna (0.013 bird catch/set). One reason for this difference in catch rates is that vessels targeting swordfish are more likely to operate within the foraging range of the seabirds. The region of greatest interactions between seabirds and the Hawai‘i-based longline fleet is a latitudinal band from 25º N. to 40º N., from the dateline to about 150º W. longitude. Table 1 provides some examples of techniques that may help to reduce interactions with seabirds on longline vessels.

Overall estimates of the effectiveness of mitigation measures in reducing the incidental catch of seabirds in the Hawai‘i-based longline fishery were computed by averaging the impacts on seabird interactions determined by research and US longline observer estimates (Hawaii Longline Fishery EIS). Some methods appear to have gret potential to significantly reduce the incidental catch of albatross in the Hawai‘i-based longline fishery but no one measure is likely to be totally effective by itself. Combining two or more measures is expected to improve overall mitigation effectiveness.

There are no records of bird catches by purse seiners in the WCPO (Lewis 1999).

Table 1. Discussion of Seabird Mitigation Measures Evaluated for the Hawai'i-based Longline Fishery. Source: Page 2-61 of the Final Environmental Impact Statement, Pelagic Fisheries of the Western Pacific Region, NOAA Fisheries, Dept. of Commerce, U.S. Government. BF = black-footed albatross *Phoebastria nigripes;* LA = Laysan albatross *Phoebastria immutabilis.*

Mitigation Measure	Discussion	Percent reduction in Incidental Catch
A. Discharge offal strategically:	While gear is being set or hauled, fish, fish parts or bait should be strategically discharged on the opposite side of the vessel from which the longline is being set or hauled. This mitigation method requires the preparation and storage of hook-free offal for strategic use during the longline set. The intent of this measure is to divert seabirds from baited hooks to other food sources when necessary to reduce interactions.	BF 83 LA 91
B. Night setting:	The longline set should begin at least one hour after sunset and be completed at least one hour before sunrise. The purpose of setting fishing gear during hours of darkness is to reduce the visibility to seabirds of baited hooks at the water's surface. If branch lines are weighted, light sticks should not significantly reduce the sink rate. The effectiveness of this deterrent may be reduced by deck lighting, which is necessary for crew and vessel safety.	BF 95 LA 40
C. Blue-dyed and thawed bait:	An adequate quantity of blue dye should be maintained on board, and only bait dyed a color that conforms to Council/NMFS standards may be used. All bait should be completely thawed before it can be dyed. The objective of dyeing bait blue is to reduce the visibility to seabirds of baited hooks at the water's surface. In addition, completely thawed bait tends to sink faster than frozen bait during the longline set, thereby reducing the time that baited hooks are accessible to seabirds.	BF 95 LA 90
D. Towed deterrent:	A line with suspended streamers (tori line) or a buoy that conforms to Council/NMFS standards must be deployed when the longline is being set and hauled. These devices scare seabirds from baited hooks at the water's surface as well as provide a physical barrier that reduces the ability of seabirds to approach the hooks. This deterrent presents a risk of fouling with longline gear as it is being set and it increases the danger to crews and vessels during setting and hauling of gear.	BF 86 LA 71
E. Weighted branch lines:	At least 45 g of weight should be attached to branch lines within one meter of each baited hook. The purpose of attaching weights to branch lines is to increase the sink rate of baited hooks, thereby reducing the availability of baited hooks to seabirds.	BF 93 LA 91
F. Line-setting machine with weighted branch lines:	The longline should be set with a line-setting machine (line-shooter) so that the longline is set faster than the vessel's speed. In addition, weights of at least 45 g must be attached to branch lines within one meter of each baited hook. Using wire leader enhances the weight of the branch line. The purpose of this measure is to remove line tension during the set, thereby increasing the mainline sink rate and reducing the time that baited hooks are at the surface and accessible to seabirds.	BF 98 LA 97

On May 14, 2002, NMFS published a final rule requiring that[20]:

- Hawaii-based vessels operating with longline gear north of 23E N., are required to use thawed blue-dyed bait and strategic offal discards to distract birds during setting and hauling of longline gear.
- When making deep sets (targeting tuna) north of 23E N., Hawaii-based vessel operators are required to employ a line setting machine with weighted branch lines (minimum weight = 45 g), or use basket-style longline gear deployed slack.
- Hawaii-based longline vessel owners and operators are required to follow prescribed handling techniques so that seabirds brought onboard alive are released in a manner that maximizes the probability of their long-term survival.
- Hawaii-based vessel owners and operators must annually complete a protected species educational workshop conducted by NMFS.

3.3 Foodweb effects

Adult tunas and billfish are at the apex of pelagic food webs in the WCPO (Figure 10). Much of the concern regarding the effects of fishing on marine food webs stems from targeting on species lower down in the hierarchy, and particularly prey or forage species on which higher level predators rely, rather than species in the upper levels. IATTC (2001), for example, states that fisheries impart top-down influence on some apex predators in the tropical EPO, but the effects of fishing did not propagate down to the forage species at the middle trophic levels. Bottom-up processes, however, appear to affect the entire food web. The longevity of the system's components and the temporal scales at which variability is transmitted up the food web appear to be important in structuring pelagic food webs.

However, Kitchell et al. 1999 have pointed to a growing body of evidence that changes at the tops of food webs are expressed at all trophic levels in a wide variety of aquatic ecosystems. Kitchell et al. used an Ecopath simulation model to investigate whether one or more members of the apex predator guild in the Central Pacific might be regarded as a keystone predator [21]. The model showed that adult yellowfin and skipjack tunas have critical roles in the food web. Their removal evoked substantial and sustained changes to the structure of the system. In addition to being important and abundant consumers, they are among prey items for higher order predators such as billfishes and sharks. More work needs to be done to better understand how the effects of removal of higher predators propagate through the food web, but it is clear that the status of these apex predators and their ecological significance can only be known through monitoring of fisheries and diet composition.

3.4 Biodiversity

The Convention on Biological Diversity concluded at the UN Conference on Environment and Development in Rio 1992 defines biodiversity as:

> *"The variability among living organisms from all sources including,* inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species and of ecosystems."*

This broad definition can be interpreted in many ways. Conventionally, biodiversity is considered at three levels: ecosystem, species, and genetic diversity (Norse 1993, Norse *et al.*

[20] http://swr.ucsd.edu/piao/eis/rod.htm
[21] One whose impact on its community or ecosystem is large, and disproportionately large relative to its abundance (Power et al. 1996).

1986). Whilst perhaps representing the most basic level of biological diversity, genetic diversity, encompassing the variation amongst individuals, is the least visible and least studied. By contrast, species diversity, commonly expressed in terms of numbers of species, is the most obvious level, and the level that is most often referred to in the common usage of the term "biodiversity." Definitions of ecosystem diversity take into account a given biological community of organisms and the area in which they live. For example, habitat diversity is the most frequently used quantitative measure of biodiversity because habitat can be defined relatively clearly in terms of both physical conditions and biotic components.

There are several general patterns of diversity that have been observed within the marine environment. Characteristically, there is a latitudinal gradient of species diversity between the poles and the tropics. There is a general cline of increasing diversity towards the tropics, although this is less well defined in the southern than in the northern hemisphere (Kendall and Aschan 1993). There is also a gradient between inshore and offshore areas. As a general rule, waters that overlay continental shelves contain more diverse communities than those of the open ocean. Patterns have also been observed in substrate types. For example, in soft sediments, diversity increases from shallow areas to deep waters (Grassle and Maciolek 1993).

Currently, there are no quantitative community-based models that link the activities of fishing fleets to biodiversity. It is, however, possible to identify the types of processes within industrial/commercial fisheries that impact on communities of organisms and habitat biodiversity.

Trophic systems such as that illustrated in Figure 10 represent a starting point for evaluating possible effects of fisheries on biodiversity at the ecosystem level. Trophic studies based on analysis of stomach contents indicate the importance of key commercial species, both as prey and predators. Data of this type indicate areas of potential conflict between the demands made by the fisheries sector and the need for conservation of overall biodiversity.

Loss and/or degradation of habitat is currently recognised as the most critical threat to marine biodiversity (Heywood and Watson 1995); prevention of such loss or degradation is considered to be the most effective way of conserving biodiversity. Other than direct modification of population sizes and the relative composition of species assemblages, as noted elsewhere in this document, there are not considered to be any substantive direct effects of pelagic tuna fisheries in the WCPO on marine habitats. A possible exception to this is the effects of anchoring of FADs, which may have some local impact that should be evaluated prior to installation and monitored subsequently.

3.5 Environmental effects on productivity

Tuna distribution and abundance have been shown to be sensitive to environmental variability (OFP[22]). In particular, the El Niño Southern Oscillation (ENSO) appears to have important consequences both for spatial distributions and migrations of the tuna populations and for their level of recruitment and biomass. Interestingly, the signal appears to be opposite according to the species, e.g., an El Niño event would have a positive influence on the recruitment of skipjack while the effect would be negative on the albacore. In addition, the interannual signal presents a correlation with the Pacific Decadal Oscillation (PDO), leading to two different regimes characterized by higher intensity and frequency of either El Niño or La Niña events.

Exceptionally high catches of skipjack between 1998 and 2000, were linked directly to strong recruitment related to the powerful 1997-98 El Niño event. It is also expected that the La Niña sequence of 1999-2001 has negatively affected the recruitment of skipjack and should lead to lower biomass in 2002-2003 (GLOBEC Newsletter October 2002). Similar trends occur for yellowfin tuna, the second tuna species by volume of capture. However, a longer life span for this species produces lower-frequency fluctuation in the population biomass. The most recent

[22] http://www.spc.org.nc/OceanFish/Html/TEB/Env&Mod/index.htm

population assessments of yellowfin tuna show that lower recruitment in the recent years have produced a significant decline of around one third in overall stock biomass since 1997 (Hampton 2002), suggesting a possible shift to a lower productivity regime. Biomass levels in 2000 and 2001 are estimated to be the lowest since the mid-1970s. If a shift to a lower productivity regime is confirmed, it is believed that present catches may not be sustainable.

Work in the EPO reported in ICCAT (2001) has demonstrated that applying realistic physical forcing to a complex ecosystem model has provided insight into the behavior of the ecosystem and the effects of bottom-up processes on the middle and upper trophic levels. Frequent ENSO events were predicted to increase the transfer efficiency of energy from the producers to animals occupying middle trophic levels, with an opposite but lesser effect on the apex predators.

4 Recommendations

There are two general situations in which managers may find themselves when striving to better account for ecosystem effects of fishing. Firstly, explicit management measures may be established in advance in order to mitigate potential likely adverse ecosystem effects of fishing (preventive action). Secondly, and more commonly, management action may be required to promote recovery from adverse impacts that have already occurred, but either were not considered when the FMP was formulated, or were not thought to be likely outcomes of the activity sanctioned under the FMP (corrective action).

It is clearly more desirable to establish measures that avoid adverse impacts before they take place. However, this is often problematic, in part because there is usually very little information available prior to the onset of fishing and the chances of making correct decisions the first time is often low. Corrective action allows uncertain processes to unfold, with a plan that unintended consequences will be mitigated if and when they occur. This allows trial-and-error types of decision making in an adaptive framework. However, fisheries often develop faster than the acquisition of data necessary to ensure that management can address mitigation of adverse impacts. A fisheries development framework such as that being elaborated by CCAMLR is a useful tool in such situations. This framework incorporates a number of regulatory requirements including advance notification of intent to participate in a fishery, research and fishery operations plans and data collection plans for all fisheries commensurate with their current status. When either uncertainty and/or the potential cost of errors are more than low, it becomes necessary to adopt a precautionary approach.

Enhanced and directed monitoring is an essential element of an ecosystem approach that seeks to take into consideration unintentional, secondary and/or indirect effects of fishing on target species with particular fishing gears. A major feature of this monitoring is likely to be increased use of observers[23], which is perhaps the only means currently available of obtaining independent information on catch and bycatch statistics at the species level, while also providing vessel and fishing effort information. Modelling is also required not only to develop a better understanding of ecological relationships and ecosystem effects, but also to explore in advance the effects of different management alternatives and their monitoring requirements.

The evaluation of management procedures by extensive computer simulation prior to their implementation provides the opportunity to eliminate management options that would fail to meet the objectives, thereby potentially avoiding a trial and error approach that has led to various kinds of problems. Methods for the elaboration of new fisheries and for managing existing fisheries while introducing a precautionary approach that accounts for uncertainty have been developed by CCAMLR (Constable *et al.* 2000) and the FAO (FAO 1995). Prospective evaluation via simulation in a staged approach allows for the implementation of a management procedure that is most likely to achieve the objectives despite uncertainties in the various parts of the system, including the limitations of a monitoring program, such as incomplete data and low power in assessments. It can also be used to ensure that the costs of management are commensurate with the value of the fishery. Prospective evaluation of management procedures is especially important if one wants to conduct adaptive management, in which harvest rules are set to produce both fish and information that allows one to reduce uncertainty.

Fishery managers need the following components of a fisheries management strategy as soon as possible:

[23] Currently there are active observer programmes in the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Papua New Guinea and Solomon Islands. These countries are soon to be joined by French Polynesia and New Caledonia who have recently secured PROC FISH (EU) funds. http://www.spc.org.nc/OceanFish/Html/TEB/Bill&Bycatch/index.htm

- a conceptual framework for considering ecosystem issues and the variety of factors that may influence the dynamics of higher level predators, including the development of reference points for states of nature akin to those used in more conventional fisheries stock assessment;

- models that can be used to explore the effects of alternative approaches to fisheries management on endangered species, such as marine turtles and birds; and

- a framework for establishing a monitoring program that could be set in place to assist managers in making decisions about the effects of fishing on the ecosystem.

Both data and models need to be specific to particular situations, designed to inform managers and the public about characteristics of the ecological system that are of interest to them. Such ecological attributes need to be summarized in a collection of ecological indicators, which are quantities that can be computed from the data and which provide information about the status of the ecological attributes. Examples of such indicators include

- Biomass / stock size
- Total mortality (catch divided by a catch limit)
- Size / age-structure
- Catch-rate
- Discard rate
- Size-spectra (using log size-classes)a
- k-dominance curves
- Coefficient of variance for total biomass
- Average trophic level
- Diversity index (e.g. Reyni or Shannon-Weiner)
- Species composition (MDS plots)
- Rate of damage
- Benthic habitat complexity
- Biomass of cover-defining species / species groups
- Reproductive success
- Ratios of piscivores : planktivores and / or demersal fishes
- Chlorophyll-a
- Redfield ratio
- Throughput
- Production / biomass
- System ominvory index
- Dominance of detritus
- Relative ascendancy
- Residence time (= biomass/(respiration + export))
- Index of Biological Integrity (IBI)

Murawski (2000) provides an important contribution in the quest for operational indices of ecosystem condition by considering the quantitative basis for defining what he terms "ecosystem overfishing". He points out that there is no specific ecosystem analogue to single-species definitions of overfishing – no single utilitarian metric of ecosystem condition, and hence ecosystem overfishing. However, he proposes the development of explicit ecosystem overfishing criteria that may be used to establish multiple tiers of measures to address issues inadequately covered by conventional single species oriented management. He concludes that ecosystems can be considered to be overfished when cumulative impacts of catches (including discards), non-harvest mortality and habitat degradation result in one or more of the following conditions:

- Biomasses of one or more important species assemblages or components fall below minimum biologically acceptable limits, such that (1) recruitment prospects are significantly impaired, (2) rebuilding times to levels allowing catches near MSY are extended, (3) prospects for recovery are jeopardized because of species interactions, or (4) any species is threatened with local or biological extinction;

- Diversity of communities or populations declines significantly as a result of sequential "fishing-down" of stocks, selective harvesting of ecosystem components, or other factors associated with harvest rates or species selection;

- The pattern of species selection and harvest rates leads to greater year-to-year variation in populations or catches than would result from lower cumulative harvest rates;

- Changes in species composition or population demographics as a result of fishing significantly decrease the resilience or resistance of the ecosystem to perturbations arising from non-biological factors;

- The pattern of harvest rates among interacting species results in lower cumulative net economic or social benefits than would result from a less intense overall fishing pattern or alternative species selection;

- Harvests of prey species or direct mortalities resulting from fishing operations impair the long-term viability of ecologically important, non-resource species (e.g. marine mammals, turtles, seabirds).

These conditions could therefore be regarded as a selection of metrics of ecosystem status that provide the basis of thresholds that should be avoided in an attempt to prevent ecosystems from becoming "unhealthy". What is perhaps harder to do is fulfill the need for management targets that can be aimed at, in the sense of restoration and maintenance of ecosystem function, as opposed to thresholds that should be avoided.

5 References

Abrahams, M.V. and M.C. Healey. 1993. Some consequences of variation in vessel density: a manipulative field experiment. Fisheries Research 15:315-322

Alverson, D. L., M. H. Freeberg, S. A. Murawski, and J.G. Pope. 1994. A global assessment of fisheries bycatch and discards. FAO Fisheries Technical Paper 339. Food and Agricultural Organization, Rome.

Anonymous, 1997. Annual Report of the Inter-American Tropical Tuna Commission. 1995. La Jolla, California, 334 p.

Bailey, K., P. G. Williams, and D. Itano. 1996. Bycatch and discards in western Pacific tuna fisheries: A review of SPC data holdings and literature. South Pacific Commission, Oceanic Fisheries Programme Technical Report No. 34.

Bakun, A. 1996. Patters in the Ocean. Ocean processes and marine population dynamics. California Sea Grant Program, La Jolla, CA

Bigelowe, K.A., C.H. Boggs and X. He, 1999. Environmental effects on swordfish and blue shark catch rates in the U.S. North Pacific longline fishery. Fisheries Oceanography 8:178-198.

Brogan D. 2002. A Review of Turtle By-catch in the Western and Central Pacific Ocean Tuna Fisheries. A report prepared for the South Pacific Regional Environment Programme (SPREP) by Oceanic Fisheries Programme, Secretariat of the Pacific Community (SPC), Noumea, New Caledonia.

Castro, J.I., C.M. Woodley and R.L. Brudek, 1999. A preliminary evaluation of the status of sharks species. FAO Fisheries Technical Paper No. 380, Rome. 72 pp.

Christensen, N. L., and 12 others. 1996. The report of the Ecological Society of America committee on the scientific basis for ecosystem management. Ecological Applications 6(3): 665-691.

FAO. 2001. Summary of the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem. http://www.refisheries2001.org/.

Francis, R.C., Adlerstein, S.A., and R.D. Brodeur. 1988. Biological basis for management of commercial fishery resources of the Eastern Bering Sea. Springer Lecture Notes on Coastal and Estuarine Studies 28:187-209

Fryer, J.K.1998. Frequency of pinniped-caused scars and wounds on adult spring-summer chinook and sockeye salmon returning to the Columbia River. North American Journal of Fisheries Management 18:46-51

Grassle, J.F. and N. J. Maciolek (1993). Deep-sea richness: regional and local diversity estimates from quantitative bottom samples. *Am. Nat*, **139:** 313-341

Graves, J.E., B.E. Luckhurst and E.D. Prince, 1999. An evaluation of pop-up satellite tag technology to estimate post-release of blue marlin (Makaira nigricans). ICATT, SCRS Report 99/97.

Grumbine, R.E. 1994. What is ecosystem management? Conservation Biology 8:27-38

Hall, M. 2002. Working With Fishers: How the Tuna-Dolphin Problem Was Almost Solved. Seminar, University of Washington. http://courses.washington.edu/susfish/hall_info.html.

Hall, M. A., 1996. On bycatches. Reviews in Fish Biology and Fisheries. No 6, p. 319-352.

Hall, M. A., 1998. An ecological view of the tuna-dolphin problem: impacts and tradeoffs. Reviews in Fish Biology and Fisheries. No 8, p. 1-34.

Hall, M. A. and P.G. Williams (1998). Bycatches in Pacific tuna fisheries. Getting Ahead of the Curve: Conserving Highly Migratory Fish of the Pacific Ocean. Publisher: National Coalition for Marine Conservation.

Hampton, J. 2002. Stock assessment of yellowfin tuna in the western and central Pacific Ocean. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia. 15th meeting of the Standing Committee On Tuna and Billfish (SCTB 15) , July 2002, Honolulu, Hawaii USA

Harwell, M.A. 1997. Ecosystem management of South Florida. BioScience 47:499-512

Heywood, V. H and R. T. Watson (eds) (1995). *Global biodiversity assessment*. Cambridge University Press, Cambridge UK, 1140 pp.

Holt, S.J. and L. M. Talbot. 1978. New Principles for the Conservation of Wild Living Resources. Wildlife Monographs No. 59, 33 pp

IATTC 2001. Ecosystem summary. Second Meeting Of The Scientific Working Group La Jolla, California, USA, April 30-May 4, 2001, Background Paper A22, Interactive Effects Of Climate And Fishing On The Tropical Eastern Pacific Pelagic Ecosystem.

IATTC.2002. Dolphin safe program. Inter-American Tropical Tuna Commission. http://www.iattc.org/Dolphin%20Safe%20ENG.htm.

ICCAT. 2001. Skipjack Tuna. http://www.iccat.es/Documents/SKJ.pdf. International Convention for the Conservation of Atlantic Tuna. Madrid.

Ito, R.Y., 1995. Annual report of the 1994 Hawaii-based longline fishery. NOAA, NMFS, SWFSC Honolulu Laboratory Administrative Report H-95-08.

JNCC. 2002. The ecosystem-based approach. Joint Nature Conservation Committee. http://www.jncc.gov.uk/marine/fisheries/environmental_obj/ecosys_approach.htm.

Joseph, J., 1994. The tuna-dolphin controversy in the Eastern Tropical Pacific Ocean: biological, economic, and political impacts. Ocean Development and International Law, Vol. 25. P.1-30.

Kendall, M.A. and M. Aschan (1993). Latitudinal gradients in the structure of macrobenthic communities: a comparison of Arctic, temperate and tropical sites. *J. Exp. Mar. Biol. Ecol.*, **172:** 157-169

Kitchell J.F., C.H. Boggs, X. He, and C. Walters. 1999. Keystone predators in the central Pacific. p.665-683 In: *Ecosystem approaches for Fisheries Management*. Alaska Sea Grant College Program. AK-SG-99-01, 1999. 756 pp.

Larkin, P. A. 1996. Concepts and issues in marine ecosystem management. Reviews in Fish Biology and Fisheries, 6: 139-164.

Lewis, A. D. 1999. An update on non-target, associated and dependent species (NADs). Third Meeting of the Forum Fisheries Committee Species Working Group, Apia, Samoa, 29th April 1999.

Mangel, M. 1988 From egg surveys to ecosystem models: Biological assumptions in fisheries management. Springer Lecture Notes on Coastal and Estuarine Studies 28:75-102

Mangel, M. and 42 coauthors 1996.. Principles for the conservation of wild living resources. Ecological Applications 6:338-362

May, R.M., Beddington, J.R., Clark, C.W., Holt, S.J., and R.M. Laws. 1979. Management of multispecies fisheries. Science 205:267-277

McCoy, M.A. and H. Ishihara, 1999. The socioeconomic importance of sharks in the U.S. flag areas of the western and central North Pacific. NOAA, NMFS, SWR Administrative Report AR-SWR-99-01.

Murawski S. A. 2000. Definitions of overfishing from an ecosystem perspective. ICES Journal of Marine Science, 57: 649-658.

NMFS. 1999. Ecosystem-based fishery management: A report to Congress by the Ecosystem Principles Advisory Board. National Marine Fisheries Service.

NMFS. 2000. Annual Report for FY 2001. Report the Forum Fisheries Agency. http://swfsc.ucsd.edu/frd/FY01%20Program%20Review/coan-westerntuna/westerntuna1A.htm.

NMFS. 2001. The 2000 U.S. tropical tuna purse seine fishery in the central-western Pacific. NMFS Fisheries Resources Division Southwest Fisheries Science Center La Jolla, California. http://swfsc.ucsd.edu/frd/FY01%20Program%20Review/coan-westerntuna/westerntuna1A.htm

Norse, E. A. (Ed.) (1993). *Global Marine Biological Diversity*. Center for Marine Conservation. Island Press, Washington D.C. 383 pp.

Norse, E. A. *et al* (1986). *Conserving biological diversity in our national forests*. The Wilderness Society, Washington, D.C.

Olver, C.H., Shuter, B.J., and C.K. Minns. 1995. Toward a definition of conservation principles for fisheries management. Canadian Journal of fisheries and Aquatic Sciences 52:1584-1594

Pauly, D. and V. Christensen. 1995. Primary production required to sustain global fisheries.Nature 374:255-257

Pauly, D., Christensen, V., Dalsgaard, J., Froese, R., and F.C. Torres, Jr. 1998. Fishing down marine food webs. Science 279- 860-863

Pitcher, T.J. 2000. Ecosystem goals can reinvigorate fisheries management, help dispute reslution and encourage public support. Fish and Fisheries 1:99-103

Pitcher, T.J. and P.J.B. Hart. 1982. Fisheries Ecology. Chapman and Hall, London, UK

Pitcher, T.J. and D. Pauly. 1998. Rebuilding ecosystems, not sustainability, as the proper goal of fishery management. Pg 311-329 in Reinventing Fisheries Management (TJ Pitcher, PJB Hart and D. Pauly, editors), Chapman and Hall, London, UK

Power M.E., and 9 others. 1996. Challenges in the quest for keystones. Bioscience 46:609-620.

Punt, A. 1997. The effect of future consumption by seals on catches of Cape Hake off South Africa. pg 134-140 in Global Trends in Fisheries Management (EK Pikitch, DD Huppert and MP Sissenwine, editors). American Fisheries Society, Bethesda, MD

Rothschild, B.J., Sharov, A.F., and M. Lambert. 1997. Single-species and multispecies management. Pg 141-152 in Northwest Atlantic Groundfish: Perspectives on a Fishery Collapse. (Boreman, J., Nakashima, B.S., Wilson, J.A., and R.L.Kendall, editors). America Fisheries Society, Bethesda, MD

Sainsbury, K.J., Campbell, R.A., Lindholm, R., and A.W. Whitelaw. 1997. Experimental management of a Australian multispecies fishery: examining the possibility of trawl-induced habitat modification. pg 107-112 in Global Trends in Fisheries Management (EK Pikitch, DD Huppert and MP Sissenwine, editors). American Fisheries Society, Bethesda, MD

SCTB. 1998. Report of the eleventh meeting of the Standing Committee on Tuna and Billfish. Secretariat of the Pacific Communities, Noumea.

Smith, S.E., W.D. Au and C. Show, 1998. Intrinsic rebound potentials for 26 species of Pacific sharks. Marine and Freshwater Research 49:663-678.

Smith, T.D. 1994. Scaling Fisheries. The science of measuring the effects of fishing, 1855-1955. Cambridge University Press, New York

Spencer, P.D. and J.S. Collie. 1997. Patterns of population variability in marine fish stocks. Fisheries Oceanography 6:188-204

Stevens, J.D. (1992). Blue and mako shark by-catch in the Japanese longline fishery off south-eastern Australia. Australian Journal of Marine and Freshwater Research, 43, 227-36.

Thrush, S.F., Hewitt, J.E., Cummings, V.J., Dayton, P.K., Cryer, M., turner, S.J., Funnell, G.A., Budd, R.G., Milburn, C.J., and M.R. Wilkinson. 1998. Disturbance of the marine benthic habitat by commercial fishing: impacts at the scale of the fishery. Ecological Applications 8:866-879

Ward, T., J. Alder, C. Margules, K. Sainsbury, D. Tarte and L. Zann. 1997. Biodiversity Conservation. Issues Paper 7. A Report Commissioned by Environment Australia November 1997. http://www.oceans.gov.au/aop/develop/series/issue7/index.html#contents

Williams, P.G. and K.Bigelow. 1998. Estimates of longline billfish catch in the western and central Pacific Ocean. OFP Internal Report No. 36.

Williams, R. G. 1997. Shark and related species catch in tuna fisheries of the tropical western and central Pacific Ocean. Oceanic Fisheries Program, South Pacific Commission. New Caledonia.

Witherell D., D. C. Pautzke, and D. Fluharty. 2000. An ecosystem based approach for Alaska groundfish fisheries. ICES Journal of Maine Science 57: 771-777.

Yodzis, P. 2000. Diffuse effects in food webs. Ecology, 81: 261-266

6 Figures

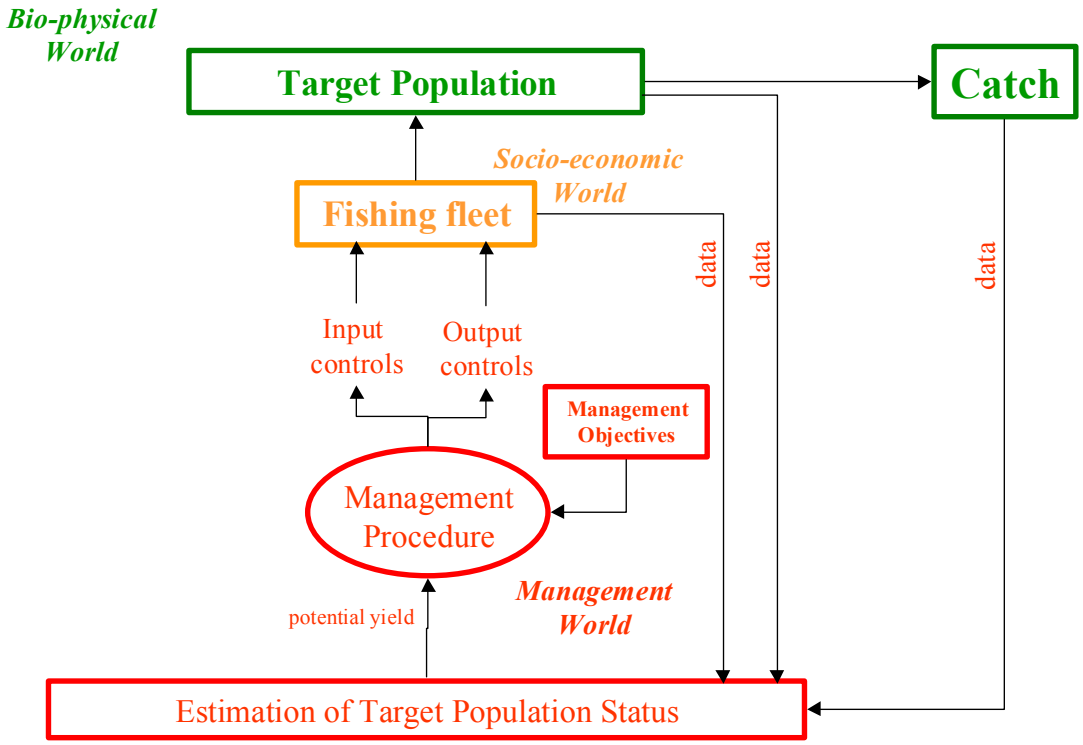


Figure 1 The conventional assessment world view, in which nearly all fishery management is currently done, recognizes the biophysical world in which the stock exists, the socio-economic world of the fishing community that takes the stock, and the management world in which catch limits are determined.

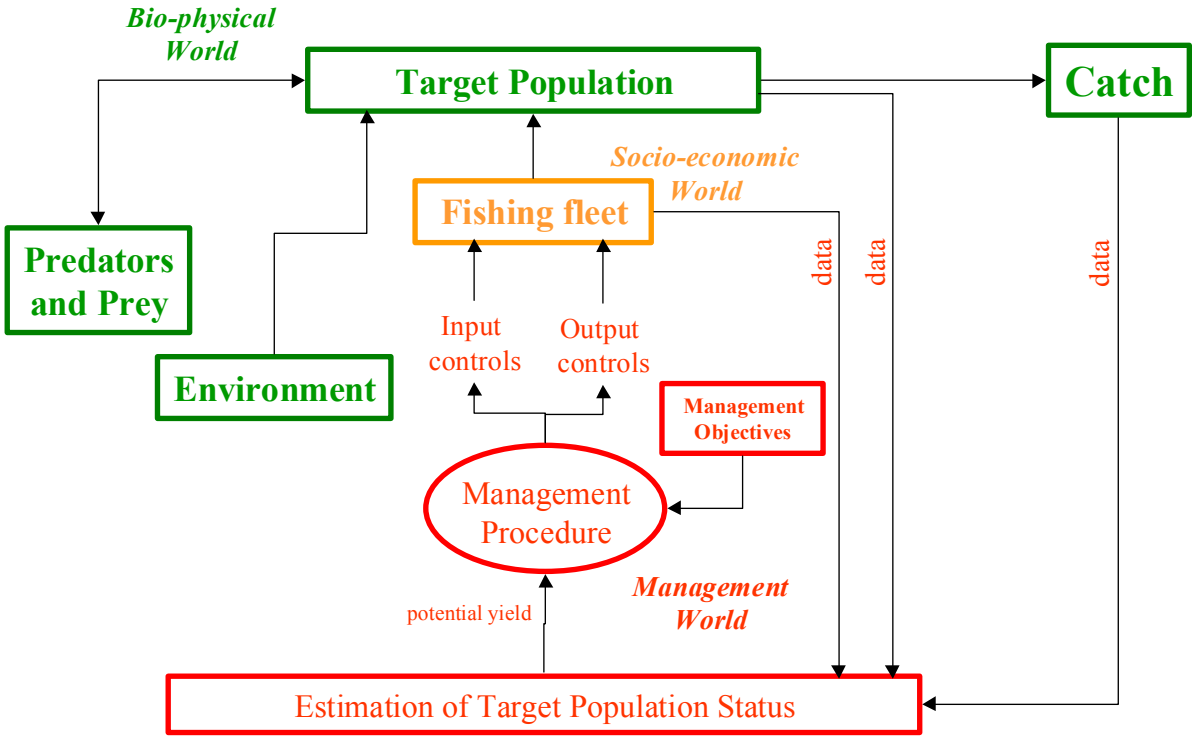


Figure 2 In the implicit ecosystem effects world view, we recognize that target species in fisheries are generally prey for other components of the ecosystem. While management objectives only take such predator needs into account in a very general way, the implicit view is cognizant of those needs.

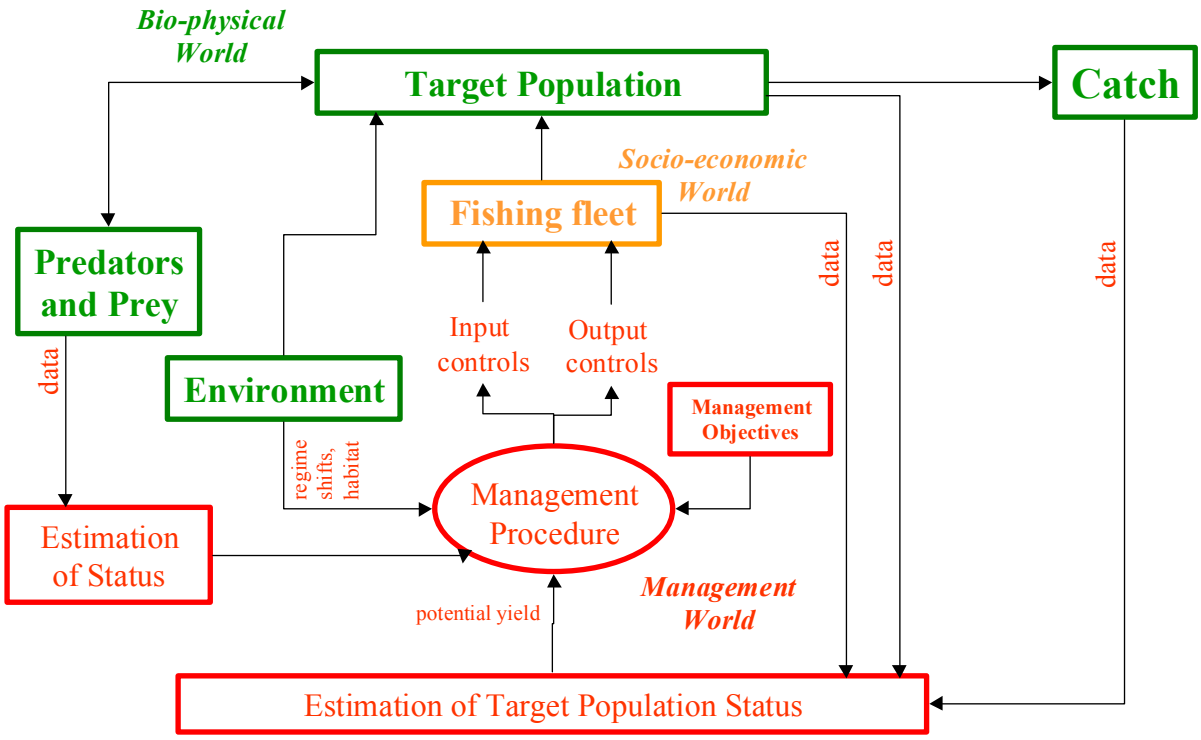


Figure 3 In the first stage of management that takes ecological and ecosystem considerations into account in an explicit manner, both the status of the target stock and its predators and prey are considered, but these are not integrated in a holistic management plan. In some sense, then status of prey and predators thus constrain the catch limit from the management procedure.

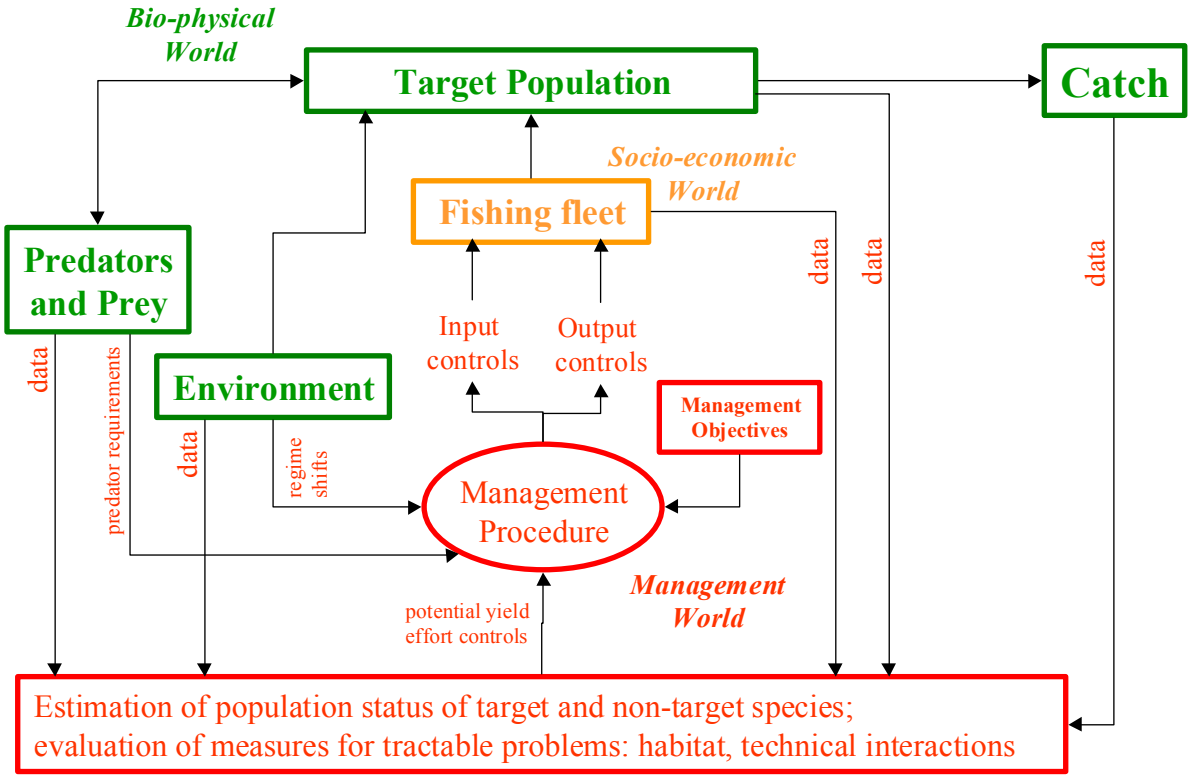


Figure 4 In the second stage of explicit consideration of ecological and ecosystem effects, one takes into account environmental effects in a more direct fashion in consideration of the status of the target stock and incorporates measures for more tractable problems.

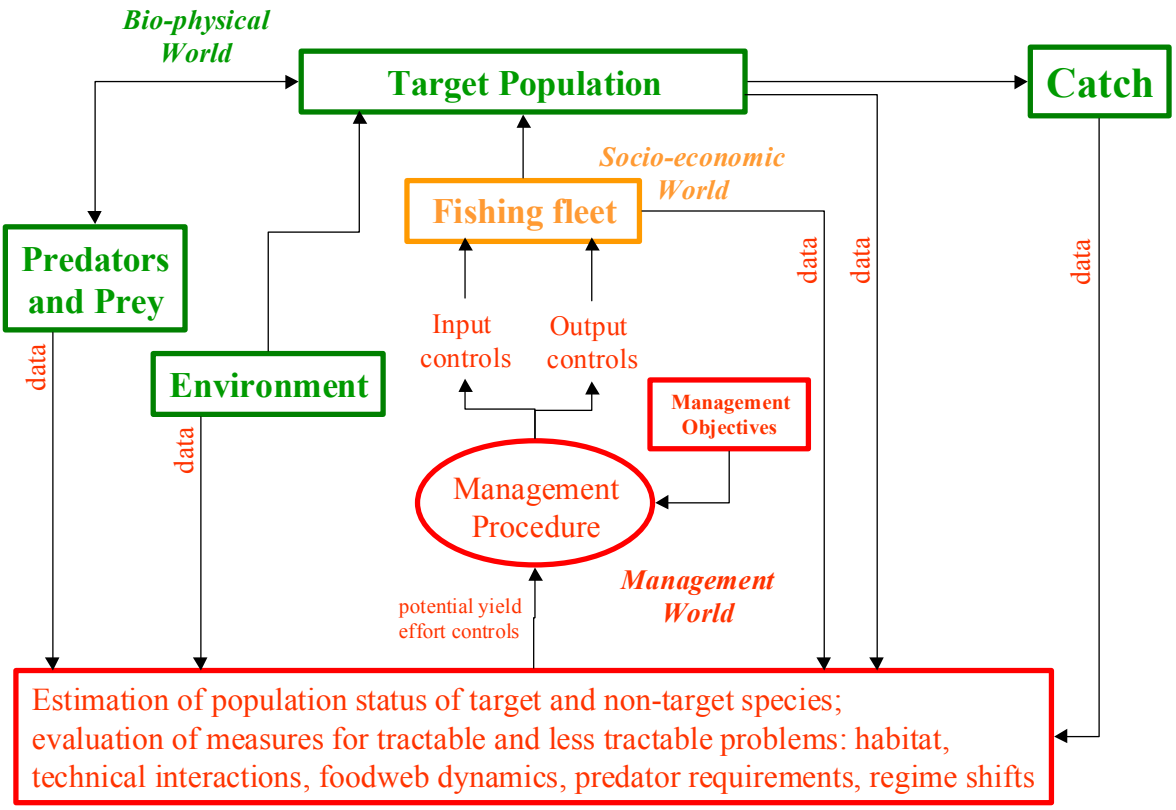


Figure 5 In the third stage, the environment, target stock, and its predators and prey are integrated in the assessment before the management procedure is used to determine catch limits. At the same time, less tractable problems are included.

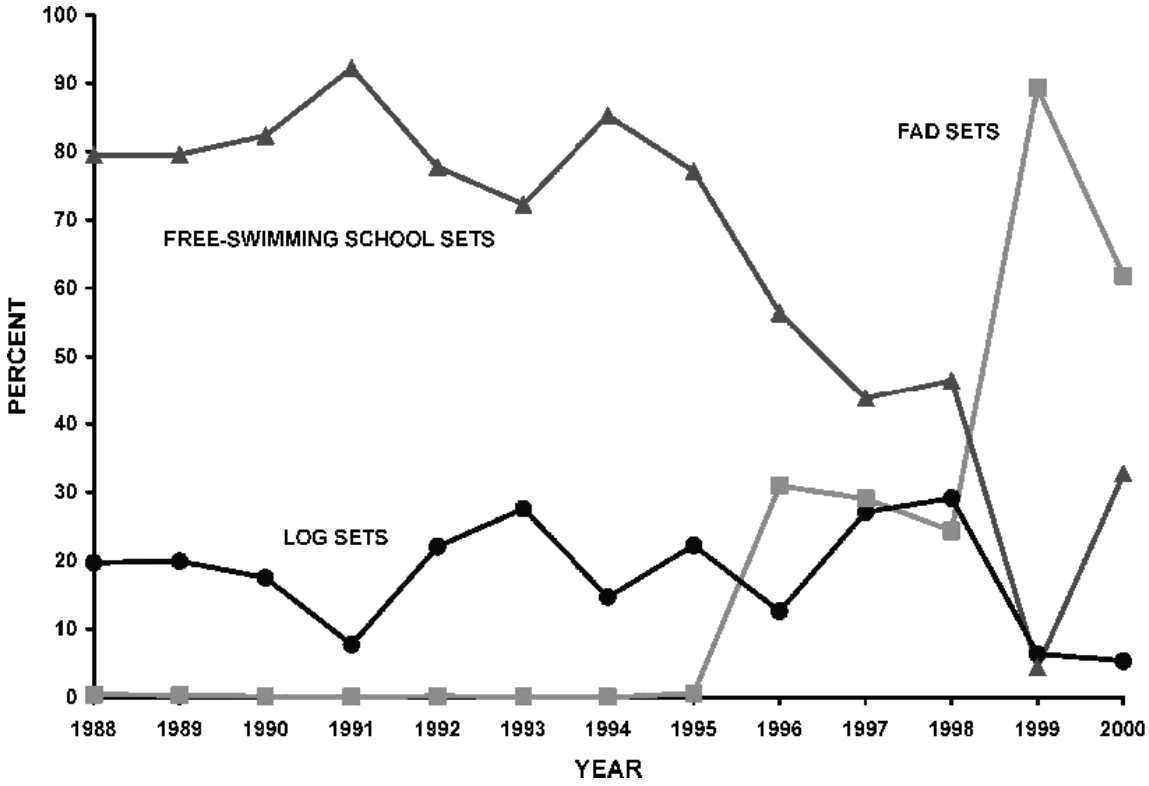


Figure 6. Changes in Purse seine sets by the US Purse Seine Fleet, 1988 to 2000 (NMFS 2001)

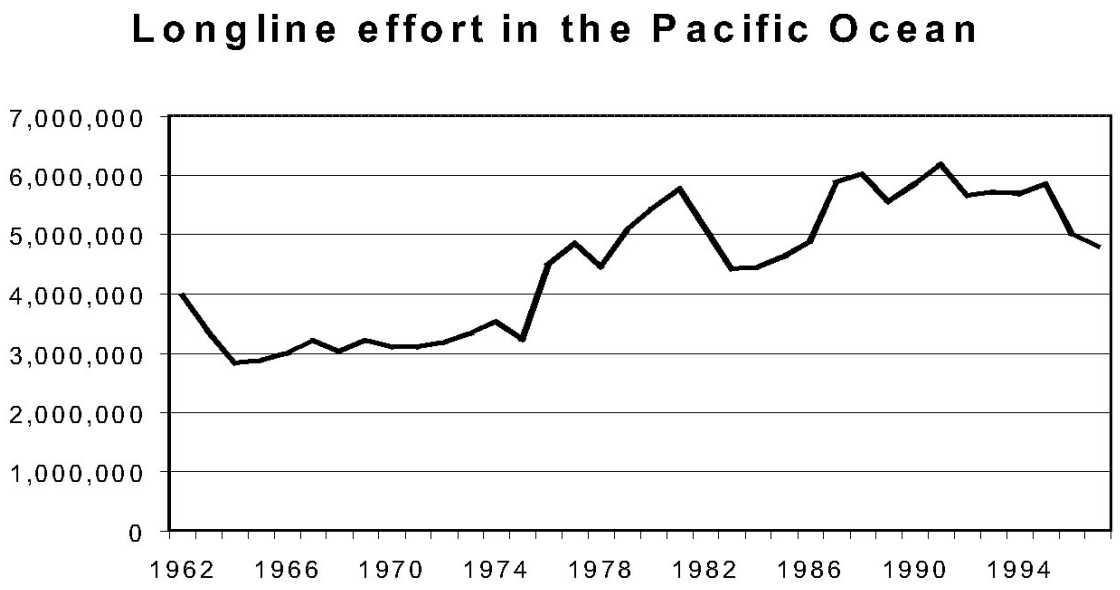
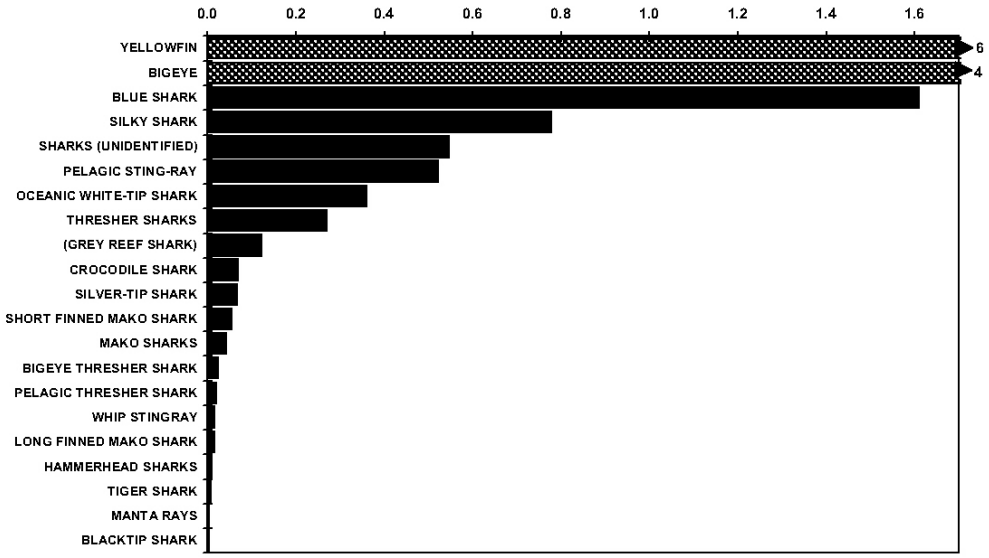


Figure 7. Historical longline effort in the Pacific Ocean (units are 00's of hooks) (after Lewis 1999)

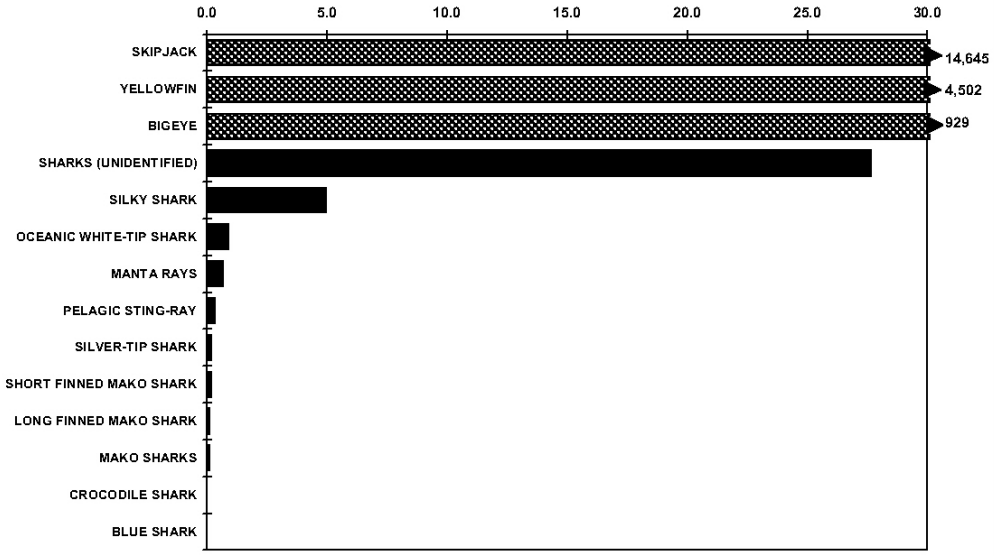


Nominal catch rates (fish per 1,000 hooks) of sharks and rays taken in the WTP longline fishery based on available observer data (1993–1997).

Notes

1. Nominal catch rates of target tuna species have been included;
2. Sharks and rays observed but not identified to the genus or species level have been included;
3. The coverage of observer data is less than 1% of longline activity in the WTP.
4. The observations of the grey reef shark (*C. amblyrhynchos*) are believed to be misidentification of the silky shark (*C. falciformis*) in most cases, but are yet to be confirmed.

Figure 8 (after Williams 1997)



Nominal catch rates (kg of fish per set) of sharks and rays taken in the WTP purse seine fishery based on available observer data (1994–1997).

Notes

1. Nominal catch rates of target tuna species have been included;
2. Sharks and rays observed but not identified to the genus or species level have been included;
3. The coverage of observer data is considered to be less than 3% of overall purse seine activity.

Figure 9 (after Williams 1997)

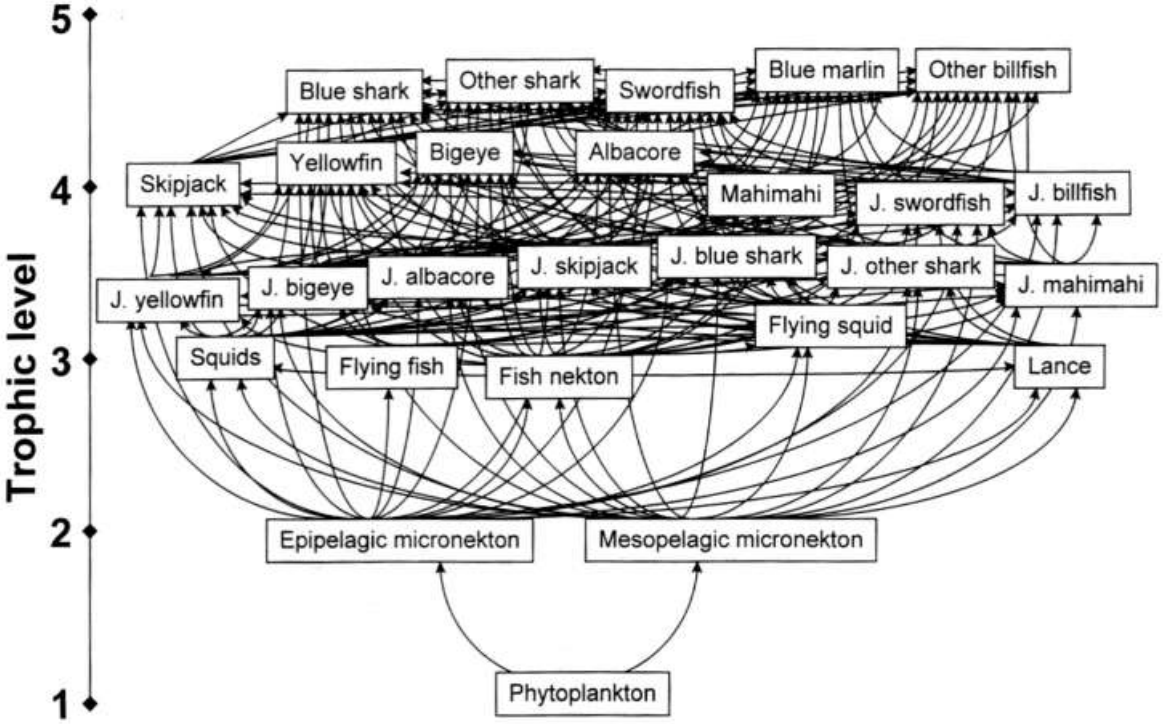


Figure 10. A food web diagram of the Ecopath model for the central Pacific (after Kitchell et al. 1999)

Appendix 1. Bycatch of turtles, marine mammals and seabirds in the Hawaii Longline fishery

Data on observed encounters with turtles, marine mammals and seabirds between 1994 and 2000. NA = data not available. Extracted from Hawaii Longline Observer Program[24] annual reports, Fisheries Observer Branch Southwest Region, National Marine Fisheries Service, U.S. Government.

	Period						
	Feb 24 1994 to Feb 20 1995	Feb 21 to Dec 31 1995	1996	1997	1998	1999	2000
Total Sets observed	570	488	624	507	561	463	1401
Total Hooks Set	599,700	543,248	731,687	585,763	734,204	687,703	2,238,842
Observed Trips*	55	42	52	38	47	38	109
Trips without Turtles	36	31	30	20	21	24	81
Trips with Turtles	19	11	22	18	26	14	28
Turtle Encounters	38	18	50	40	60	30	54
Released Alive							
Loggerhead	20	10	26	24	45	17	27
Leatherback	8	3	7	11	5	1	11
Olive Ridley	4	2	8	3	2	6	8
Green/Black	2	0	3	0	2	2	3
Unid. Hardshell	3	2	2	0	0	1	0
Returned Dead							
Loggerhead	0	0	0	0	1	0	0
Leatherback	0	0	1	0	1	1	0
Olive Ridley	0	1	1	0	3	1	3
Green/Black	0	0	0	0	0	1	2
Released, Disposition Unknown							
Loggerhead	0	0	1	0	0	0	0
Leatherback	1	0	1	1	0	0	0
Unid. Hardshell	0	0	0	1	1	0	0
Turtles per 1,000 hooks	0.063	0.033	0.063	0.068	0.082	0.044	0.024
Marine Mammal Encounters	NA	3	3	5	3	5	8
Released Alive							
False Killer Whale	NA	0	0	1	1	0	0
Risso's Dolphin	NA	2	1	2	0	2	1
Spinner Dolphin	NA	0	0	1	0	0	1
Bottlenose Dolphin	NA	1	0	0	0	1	0
Common Dolphin	NA	0	0	0	0	0	1
Sperm Whale	NA	0	0	0	0	1	0
Short-Finned Pilot Whale	NA	0	0	0	0	0	1
Unid. Whale	NA	0	1	0	2	1	1
Unid. Cetacean	NA	0	0	0	0	0	2
Returned Dead							

[24] http://swr.ucsd.edu/hcd/hillobs.htm

	Period						
	Feb 24 1994 to Feb 20 1995	Feb 21 to Dec 31 1995	1996	1997	1998	1999	2000
Short-Finned Pilot Whale	NA	0	0	1	0	0	1
Released, Disposition Unknown							
Unid. Cetacean	NA	0	1	0	0	0	0
Seabird Encounters	205	208	90	172	104	71	248
Released Alive							
Black-footed Albatross	24	22	13	24	6	7	29
Laysan Albatross	32	28	6	19	26	7	30
Unid. Seabird	0	0	0	0	1	0	0
Returned Dead							
Black Footed Albatross	106	79	46	86	39	36	133
Laysan Albatross	42	78	25	43	30	21	55
Sooty Shearwater	0	0	0	0	0	0	1
Unid. Seabird	1	1	0	0	0	0	0
Released, Disposition Unknown							
Black Footed Albatross	0	0	0	0	1	0	0
Laysan Albatross	0	0	0	0	1	0	0

* The number of observed trips in this table refers to the number of completed trips (i.e. those with returning observers) within the relevant period.

Appendix 2. U.S. Sea Turtle Conservation Measures applying to longline fisheries in the Western Pacific Region

FISHERY MANAGEMENT PLAN
PELAGIC FISHERIES OF THE WESTERN PACIFIC REGION

Current as of September 2002[25]:

- Operators of all U.S. longline vessels permitted under the Pelagics FMP (including vessels based in American Samoa, Guam, and the CNMI are prohibited from using longline gear to target swordfish north of the equator. To accomplish this, NMFS has decided to issue rules to require that:

    - Operators of all U.S. longline vessels permitted under the Pelagics FMP fishing north of the equator are required to deploy all longline gear such that the "sag" (deepest point) between any two floats is at least 100m (328.1 ft.) below the sea surface and the length of each float line used to suspend the longline beneath a float must be longer than 20m (65.6 ft.), with a minimum of 15 branch lines deployed between any two floats when fishing with monofilament gear or a minimum of 10 branch lines deployed between any two floats when fishing with tarred-rope basket gear.
    - Possession of light sticks, including any type of light emitting device including any flourescent "glow-bead" chemical or electrically powered light type product, is prohibited on board all U.S. longline vessels permitted under the Pelagics FMP during trips north of the equator.
    - Possession or landing of more than 10 swordfish per trip by any U.S. longline vessel permitted under the Pelagics FMP is prohibited.

Additionally, NMFS has decided to issue rules to require that:

- Operators of all U.S. longline vessels permitted under the Pelagics FMP are prohibited from fishing with longline gear during the months of April and May in the area bounded on the south by the equator, on the west by 180 W. longitude, on the east by 145 W. longitude, and on the north by 15 N. latitude.
- The transhipment to vessels registered for use under a western Pacific receiving vessel permit of pelagic fish caught by longline gear within the closed area during April and May is prohibited.
- Operators of all U.S. longline vessels permitted under the Pelagics FMP are required to cease gear retrieval if a sea turtle is discovered hooked or entangled on a longline until the turtle has been removed from the gear or brought onto the vessel's deck.
- Operators of U.S. longline vessels with a working platform 3 feet or more above the sea surface are required, if practicable, to use a dip net meeting NMFS' specifications to hoist a sea turtle onto the deck to facilitate the removal of the hook and/or to revive a comatose sea turtle.
- Operators of U.S. longline vessels with a working platform less than 3 feet above the sea surface are required, if practicable, to ease a sea turtle onto the deck by grasping its carapace (shell) or flippers to facilitate the removal of the hook and/or to revive a comatose sea turtle.
- The re-registration of a Hawaii-based longline vessel that has been deregistered from a Hawaii longline limited access permit after March 29, 2001, is allowed only during the month of October.

[25] http://swr.ucsd.edu/piao/eis/rod.htm

- Operators of all U.S. longline vessels permitted under the Pelagics FMP are required to annually attend a protected species workshop, obtain a certificate documenting completion of the workshop, and carry the certificate or a copy on board the vessel.
- Operators of all pelagic fishing vessels fishing with hooks for pelagic management unit species within U.S. EEZ waters of the western Pacific region are required to carry and use line-clippers and wire or bolt cutters capable of cutting through fishing hooks, and must remove all hooks from sea turtles as quickly and carefully as possible or cut the line as close to the hook as possible. In addition, the operators are required to handle all incidentally taken sea turtles brought aboard for dehooking and/or disentanglement in a manner to minimize injury and promote post-hooking survival.

WCPFC/PrepCon/WP.10

Interim Advice to the Preparatory Conference for the Western and Central Pacific Fisheries Commission (WCPFC)

Review of Data Standards, Technical Capabilities and Data Sharing Policies for the Western and Central Pacific Region

Prepared for

**The Preparatory Conference
For the Western and Central Pacific
Fisheries Commission (WCPFC)**

Manila, Philippines, November 18-22, 2002

By

**MRAG Americas, Inc.
110 South Hoover Boulevard
Suite 212
Tampa, Florida 33609**

November 2002

List of Acronyms

CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CECAF	Commission for the Eastern Central Atlantic Fisheries
CES	Catch and Effort Statistics
CPUE	Catch Per Unit Effort
CWP	Co-ordinating Working Party on Fishery Statistics
EEZ	Exclusive Economic Zone
EU	European Union
Eurostat	Statistical Office of the European Community (European Commission)
FAO	United Nations Food and Agriculture Organisation
FFA	Forum Fisheries Agency
FIDI	Fishery Information Data and Statistics Unit
FIGIS	Fisheries Global Information System
FTP	File Transfer Protocol
GAM	Generalised Additive Model
GFCM	General Fisheries Commission for the Mediterranean
GLM	Generalised Linear Model
HMS	Highly Migratory Species
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IOTC	Indian Ocean Tuna Commission
ISC	Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean
ISCAAP	International Standard Statistical Classification of Aquatic Animals and Plants
IWC	International Whaling Commission
MCS	Monitoring Control and Surveillance
MHLC	Multilateral High Level Conference
NADS	Non-target, Associated and Dependent Species
NAFO	Northwest Atlantic Fisheries Organisation
NASCO	North Atlantic Salmon Conservation Organisation
OECD	Organisation for Economic Cooperation and Development
OFP	Oceanic Fisheries Programme
PrepCon	Preparatory Conference
RFMO	Regional Fisheries Management Organisation
SCTB	Standing Committee on Tuna and Billfish
SPC	Secretariat of the Pacific Community
STATWG	Statistics Working Group of the ISC
TAC	Total Allowable Catch
UNFSA	United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks
VMS	Vessel Monitoring System

VPA	Virtual Population Analysis
WCPO	Western Central Pacific Ocean
WG	Working Group

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1 Introduction

1.1 Background

The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean was concluded in July 2000. The Convention was opened for signature at Honolulu on 5 September 2000. The Conference that negotiated the Convention passed a resolution establishing a Preparatory Conference (PrepCon), which met for the first time in April 2001 in Christchurch, NZ.

During the meeting, the PrepCon established two open-ended working groups:

- Working Group I (WGI) on issues relating to the organisational structure of the Commission, its budget and financial contributions.

- Working Group II (WGII) on the scientific structure of the Commission and the provision of interim scientific advice.

During the second session of the Preparatory Conference (PrepCon2), WGII reviewed and gave preliminary consideration to the Commission's needs with respect to:

1. Data requirements, including current gaps in data coverage and standards for data collection and management;
2. Science, and in particular stock assessment and advice on stock status in the short term and ongoing;
3. Research priorities and research planning and co-ordination;
4. Review of assessments, analyses and other scientific work.

WGII established an ad-hoc task group to consider the future information needs to support discussions and progress on matters related to the scientific activities of the Commission. Drawing upon the material from the ad-hoc task group the working group agreed that the following matters, amongst others, should be addressed, as far as possible, prior to the next meeting of the working group:

1. An investigation of the technical capabilities, and security and data-sharing policies of existing organisations, including those of participants in the Preparatory Conference, with the view of possibly contracting out interim data services.

2. A compilation and review of standards for collection, verification and for the timely exchange and reporting of data on fisheries currently practised by existing arrangements (e.g. SCTB, ISC, IATTC, CCAMLR, CCSBT and ICCAT) and an assessment of their suitability for use by the Commission.

This report addresses these matters.

1.2 The requirement for data

The quality of fishery data required for fishery management cannot be determined in isolation. The purpose for which data are needed dictates the required resolution (see Section 1.2). For example, to close a fishery that reaches an overall TAC requires data of lower resolution that for a fishery where quota is allocated to individual vessels. Similarly, the time scale on which data are needed also varies depending on their intended use. For example, catch and effort data collected for use in an annual stock assessment analysis may be reported with several months delay between the catch event and the time of

recording in the database. However, catch data that are used to monitor progress during the season towards a catch limit must be reported with minimal delay to ensure that the fishery is closed when the limit is reached.

Fishery collection programs often develop during the initial phases of a fishery, and continue even as the fishery and exploitation patterns change. Periodic review of the fishery, its management objectives, and the data collection program assures that the data collection program remains compatible with current data needs.

The data requirements for the types of scientific analyses needed to manage WCPO tuna fisheries in accordance with the Convention text are essentially those specified by other tuna commissions. The most basic data are catch (by weight and/or numbers), effort, and length frequency data. If the fish can be aged, which in the case of tuna is very rare, then age sub-samples, along with other biological data are needed to develop estimates of the various biological relationships (growth, mortality, length-weight etc.). All these data should be collected on an ongoing routine basis. Ideally, they would be supplemented by other targeted data collection (surveys, tagging, etc.). Regarding fishing effort, it is important to collect vessel specific information, for example through a vessel register and observer programme.

One of the keys to reliable tuna assessments is the collection of representative data across the full range of the species being caught. First and foremost this provides good estimates of total removals. But, given the distribution of HMS is affected strongly by the environment, it is vital to cover the full area, especially when developing abundance indices. Unlike most other ocean areas with tuna fisheries, the WCPO contains many small islands, which affect oceanic processes and make interpretation and extrapolation of data much more difficult. Finally, many of the longliners work preferentially on the high seas, rather than within an EEZ, and data from them is vital. Longline effort data are usually considered easier to interpret than purse seine effort data.

Regarding the scale of data required for stock assessment, the characteristics of HMS and their fisheries make it very important to collect data at the finest scale possible. This points essentially to haul-by-haul data.

For most tuna species, especially tropical tunas, ageing is extremely difficult, and currently not possible for some species. In those species, good quality, comprehensive length frequency data (at as fine a geographical scale as possible) and growth curves are needed, with large enough sampling fractions and full area coverage. This is true whether one is using simple production models, age-structured production models, VPA-like assessments or integrated assessment methods.

The other vital element is catch per unit effort (CPUE) data. In many cases, these are the only data that might produce an index of abundance. It is now routine to analyse these data with complex statistical analytical tools such as generalised linear models (GLMs) and generalised additive models (GAMs). These models try to account for targeting changes over time, vessel changes, and spatial distribution. Commonly in these analyses every factor is significant, as usually is every interaction term. For these reasons, these analyses are most effective when undertaken on detailed haul-by-haul data (e.g. from logbooks) with exact positions, supplemented by observer data. However, this ideal is rarely met. Most tuna commissions do not have mandatory submission of data at such a fine scale. More commonly, catch and effort data are required on a scale of 1-degree squares by month, while length data may be required on a scale of 5-degree squares by month or quarter. It is sometimes possible to get access to more detailed haul-by-haul data, but the problem is that collection of data at this scale impinges on issues of commercial confidentiality, and unless fishers and flag states are convinced that confidentiality will be preserved, there will be a reluctance to submit the necessary information.

2 Data Standards

2.1 Introduction

In this section we have compiled and reviewed standards for collection, verification and for the timely exchange and reporting of data on fisheries currently promoted and/or practised by existing arrangements.

The Convention calls for the Commission to:

- Adopt standards for collection, verification and for the timely exchange and reporting of data on fisheries for highly migratory fish stocks in the Convention Area in accordance with Annex I of the Agreement, which shall form an integral part of this Convention (Article 10(1d)).

- Compile and disseminate accurate and complete statistical data to ensure that the best scientific information is available, while maintaining confidentiality, where appropriate (Article 10(1e)).

With regard to data collection, Annex I of the UNFSA explicitly requires fishery data collection at an operational level. Conversely, obligations relating to specifications for data reporting are not clearly defined. Nevertheless, given reference to the need for data collection and compilation enabling – *statistically meaningful analysis for the purposes of fishery resource conservation and management* – this too points to the need for catch and effort reporting at the finest stratum possible, at the operational level.

> *States should ensure from vessels flying their flag that data are collected on fishing activities according to the operational characteristics of each fishing method (e.g., each individual tow for trawl, each set for long-line and purse-seine, each school fished for pole-and-line and each day fished for troll) and in sufficient detail to facilitate effective stock assessment* (Article (2a))
>
> *States should agree, within the framework of subregional or regional fisheries management organizations or arrangements, or otherwise, on the specification of data and the format in which they are to be provided, in accordance with this Annex and taking into account the nature of the stocks and the fisheries for those stocks in the region* (Article (2d))

The management of HMS requires regional co-ordination through the development of common standards (guidelines) influencing collection, verification and reporting of data. Criteria need to be established which, when applied, permit data collected at a national level to be used as the source of regional data. The primary objective of standardisation, in this context, is therefore to facilitate the integration of data collected under different data collection systems through the application of common standards and classification codes. The application of common standards and codes has a particular influence on the extent to which data can be integrated within a central data repository. Significant benefits can be obtained in both the quality and value of data where standards are applied.

The use of data exchange standards, in addition to offering a framework of guidelines defining the format of submissions, provides ready means of integrating data from disparate sources, and in so doing enables Regional Fisheries Management Organisations (RFMOs) to offer information and services in improved ways.

Timely exchange (reporting) of data will rely to a large extent on the structure of national data collection systems. Significant benefits in timeliness of data reporting can result through ensuring that standard (compatible) exchange formats are generated; recent IT advances have been made in the development of methods of data exchange that are independent of proprietary software or hardware.

In the development of standards applicable within the region the Commission will need to consider the particular situations of developing countries as these countries may not be able readily to implement standards designed in the context of more developed fisheries. Specific regional examples include the Philippines and Indonesia where the capacity to monitor domestic fleets is limited.[1] On the other hand the national capabilities of the Island Nations in Convention Area are substantially augmented through their membership of FFA and SPC.[2]

Finally, it is essential that the initial system of standards and classifications is not only capable of meeting immediate data needs, but that it is also flexible enough to meet those needs which might evolve over time.

2.2 Standards for data collection and reporting

2.2.1 CWP

The FAO promotes various instruments, which present overarching guidelines for collection and exchange of fisheries data, including: 1995 United Nations Fish Stocks Agreement (UNFSA), the FAO Compliance Agreement, and the FAO Code of Conduct for Responsible Fisheries. Given clear reference to the UNFSA in the recommendations of the MHLC consultation of 1996 and subsequent Convention text, it is important for the Commission to be aware of FAO standards developed in support of statistical systems guided by these instruments. This includes internationally recognised definitions, classifications and codes, which the FAO recommends be used where possible and appropriate.

The FAO co-operates with regional fisheries bodies, particularly through the Co-ordinating Working Party on Fishery Statistics (CWP), to standardise reporting forms, procedures, definitions, classifications, and other related documentation.

The CWP has as its purpose to:

- Keep under continuous review the requirements for fishery statistics for research, policy-making and management,
- Agree standard concepts, definitions, classifications and methodologies for the collection and collation of fishery statistics, and
- Make proposals for the co-ordination and streamlining of statistical activities amongst relevant intergovernmental organisations.

Current Membership of the CWP includes CCAMLR, CCSBT, FAO, IATTC, ICCAT, ICES, IOTC, NASCO, NAFO, OECD, EU/Eurostat, SPC and the IWC. The OFP Fisheries Statistician is currently chairman of the CWP.

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[1] As noted in Williams (2002), Indonesia and the Philippines represent two of the largest domestic tuna fisheries in the world. The estimated tuna catch from the Indonesian and Philippine fisheries contribute 17% and 13% of the WCPO total catch, respectively, and 13% and 9% of the Pacific Ocean total catch, respectively. Appropriate data from these fisheries are therefore fundamental to regional tuna stock assessments.

[2] Commencing in 1988, tuna fishery databases have been developed and installed on computers in fisheries departments of fourteen SPC member countries. The systems are customised according to the needs of the member country, but typically allow the production of data summaries and maps of fishing activity within their EEZ. Some systems also include a logsheet data entry component and components for landings data, observer data and length-frequency data. In cases where data entry is carried out at SPC, regular data updates are sent via email or on CD-ROM with the CES data retrieval system. Countries that have received support for their fisheries databases include Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, New Caledonia, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Tuvalu. In the past, the OFP has also provided support to Guam and the Northern Marianas; however, support for these systems has since been provided by the National Marine Fisheries Service (http://www.spc.org.nc/OceanFish/Html/Statistics/StatSysSCTB.htm).

It is strongly recommended that the Commission adopt standard codes and co-ordinate with FAO and the CWP in their development. Where it is necessary to adopt unstandardised codes very rapidly, databases can easily be configured to accept temporary codes for later replacement with standard codes.

2.2.1.1 Review of statistical requirements

A critical element to ensure that appropriate standards are maintained, whilst reflecting the changing needs and priorities of scientists, statisticians and fisheries managers, is the need for ongoing review and adaptation. Recent initiatives of the CWP, relevant to the Commission, include the recognition that a more integrated approach to fisheries management is needed; a consequence of this being the need for data outside the realm of traditional fishery statistics, including data relating to biological, environmental, social and economic aspects of fisheries. Concepts and definitions for the parameters necessary to address these additional aspects are under continued review, particularly as regards mechanisms for their assimilation into existing data collection programmes. An example is that, although not mandated to define social and economic indicators, in recognition of the increasing importance of social and economic data, the CWP recognises that there is a role to be played in addressing the data requirements necessary to quantify them (Inter-Sessional Meeting of the CWP, 2002).

2.2.1.2 Standard classification codes and definitions

The use of internationally agreed codes is an important element facilitating the collation of fishery statistics from disparate sources, at national, regional and at international levels. International classification codes agreed by the CWP include:

- International Standard Statistical Classification on Aquatic Animals and Plants (ISSCAAP)
- International Standard Statistical Classification of Fishing Vessels (ISSCFV)
- International Standard Statistical Classification of Fishing Gears (ISSCFG)

Standard classification codes drawn-up by the CWP have been widely accepted. Periodic reviews are undertaken in an effort to reflect changes in fisheries and the needs of scientists, statisticians and managers. Issues recently addressed by the CWP have included proposed revisions to ISSCAAP and ISSCFV (FAO, 2001).

Also with regard to standard classifications, a recommendation has recently been put forward by the SPC and IATTC proposing that once the Commission becomes operational, statistical areas be modified to reflect areas used for statistical purposes by the Commission, IATTC, and other RFBs in the region.

In addition, the CWP has recommended improvements to standard definitions. A recommendation was made by the CWP for an amendment to the definition relating to attribution of catch nationality; specifically with regard to flag state reporting obligations (FAO, 1999c). The recommendation was made in recognition of the complex situation surrounding DWF vessel reporting, particularly when fishing in territorial waters under access or joint venture arrangements. The updated definition has been implemented by the SPC-OFP when determining catch and effort reporting obligations (Lawson et al., 2002); this matter is discussed in more detail in Section 2.6.1.

2.2.1.3 Reporting methods

Recognising the importance of harmonised data reporting, the CWP has also addressed the issue of standardising format for data reporting. Traditionally, focus has orientated towards the standardisation of paper reporting formats such as the STATLANT questionnaires, to which the CWP made a major

contribution with regard to the specification of measures of fishing effort by gear type. The name itself betrays the origins of the CWP as a co-ordinating body for Atlantic statistics. STATLANT forms are dispatched (together with instructions for completion) by the FAO on behalf of RFMOs to the relevant national authorities.

- STATLANT A questionnaires are used for reporting annual nominal catch by species and by statistical sub-area, division or sub-division.
- STATLANT B questionnaires are used for reporting fishing effort by month, vessel size class, gear and statistical sub-area, division or subdivision and together with associated catch by species.

Statlant A and B questionnaires have been used by CCAMLR to collate statistics for major fishing areas 48, 58 and 88 (Southern Oceans), by NAFO for area 21 (Northwest Atlantic), by ICES for area 27 (Northeast Atlantic), by CECAF for area 34 (Eastern Central Atlantic), and by GFCM for area 37 (Mediterranean and Black Sea).

With the specification of finer and finer detail in catch reports (many organisations now require that haul by haul data are reported from defined fisheries), Statlant data are probably of less use to individual RFMOs than they were previously. If they are the only form of reporting on some fisheries, they are obviously essential, but in the case where there are better data available to the organisation, Statlant data still have a use in being public domain summaries of data on catch and effort.

FAO only collates the Statlant A questionnaires into its publication of global fisheries statistics, and the organisations listed above have generally found the Statlant B information to be more useful for their purposes. Thus, if the Commission wishes Statlant B data to be available publicly it will have to publish them itself. This should, however, be relatively inexpensive especially if web-based publication is envisaged.

More recent attention of the CWP has focused on the need for standards to be defined for reporting using electronic media. An example is the recognition of the CWP of the widespread implementation of VMS technology and the need for international reporting standards. The CWP agreed that there is an urgent need for an international standard format which accommodates the reporting of position, fishing activity, catch and other data through VMS. The CWP recommended that an international standard be developed and promoted, and that FAO consider facilitating this process as a matter of urgency (FAO, 1999c).

2.2.2 FIGIS

The Fishery Global Information System (FIGIS) is a global information system on fisheries developed by FAO aimed at providing policy makers with timely, reliable strategic information on fishery status and trends on a global scale. Designed as a policy-based information system, it provides a single entry point to strategic data, information, analyses and reviews of fisheries issues and trends. A key principle of FIGIS is that of ensuring that information is quality-controlled and maintained up-to-date. FIGIS' maintenance will rely upon a network of partners (initially RFMOs and National Centres of Excellence) contributing to the system according to their own mandate. As a corollary, the system's control is decentralised: contribution and maintenance rights are assigned to FIGIS partners who are the data owners, these partners having to share certain standards and adhere to certain rules aimed at ensuring the best possible quality of data and information. Being a distributed information system, FIGIS will allow states to fulfil their reporting obligations according to international requirements. In that respect, FAO has already agreed with SPC, ICCAT, ICES, and NAFO on the development of case studies.

For effective fisheries information management, FIGIS needs to promote and agree on standards: thesauri with agreed vocabularies and classifications for indexing, glossaries to ensure definitions of terms, and shared concepts. Norms for data sets content management are under development, including documentation of information quality assurance processes. FIGIS refers to the Dublin core XML Metadata standard to set up its own proposal for a Fisheries XML information standard.

2.2.3 ISO

The International Organisation for Standards (ISO – www.iso.org) produces internationally agreed standards for quality management systems (ISO9000) and for environmental management systems (ISO14000). Under the ISO format, standards developed must:

- Consider and organise the purpose of the standards,
- Define the problem areas that the standards must solve,
- Determine the "best practices" available, and
- Select the actual measures to assure that the standards are met.

The main attributes of best practice are based on the standards established by ISO 14000. In environmental management these standards require consensus planning and comprehensive stakeholder involvement, based on full information and equal empowerment. The ISO 14000 standards for environmental management are scale-independent: they apply to environmental management of regions, sectors, specific projects and individual operational activities.

The rigorous and time-consuming process to achieve full ISO certification for data collection management standards will not likely serve the purpose of the Commission. However, a less rigorous procedure that follows the ISO format will provide an opportunity for the PrepCon to fully evaluate the details of sampling requirements in the context of data quality needs, e.g. see Figure 2.1.

2.2.4 1996 MHLC Technical Consultation

The MHLC Technical Consultation of 1996 agreed several outline standards for collection, verification, and exchange and reporting of data. During the Technical Consultation, a drafting group, consisting of Representatives of Japan, Korea, New Zealand, Papua New Guinea and the United States, assisted by SPC and FFA staff drafted recommendations for co-operation in data collection and exchange and research co-operation under some future regional fisheries management organisation or arrangement. The resulting recommendations were as follows:

In recognition of the need to progress the development of scientific support for future conservation and management of highly migratory species in the WCPO, the Consultation affirmed its support for:

- *Collection by flag states of catch (target and non-target species), effort and other data at a vessel operation level, i.e. logbook data;*
- *Provision of such data for both waters under national jurisdiction and the high seas at a degree of detail and at a level of resolution to be agreed upon to enable effective stock assessment; and*
- *Co-operation in scientific programmes to generate other data required for effective stock assessment.*

Regarding the future data needs of WCPO fisheries, the Consultation recommended that any future co-operative scientific data collection in the WCPO be consistent with the guidelines and requirements of the UN Implementing Agreement, especially as set out in Annex I of that agreement, and be established pursuant to a regional fisheries management organisation or arrangement, taking into account the nature

of the stocks and the fisheries involved. Regarding the specification of agreed minimum requirements of any future scientific data collection programme, the Consultation also recommended that the following elements be included in any such future programme:

(1) Flag states should compile annual catch statistics by species, covering all fishing activities for each fleet.

(2) Flag states fishing for tuna in the WCPO should collect catch, effort and other data at the fishing operation level (i.e. logbook data in a format to be agreed upon) for all commercial tuna fishing activity, regardless of whether such activity takes place in waters under flag state jurisdiction, other national jurisdiction or on the high seas. The logbook data should be validated with landings or other information.

(3) Annual catch statistics should be made available as soon as possible to all parties involved in the arrangement. Agreement should be reached on how to consolidate logbook and other data for all fleets in a confidential database. Access to such data should be under conditions determined by international agreement.

(4) A data repository system for length-frequency and associated data should be established so that such data can be used under agreed conditions for stock assessment and other tuna research projects. A co-ordinated sampling plan for all major species should be developed and implemented through the co-operation of the parties involved in the arrangement.

(5) A scientific observer programme, based on a regionally co-ordinated sampling design, should be developed and implemented through an agreement among the parties involved in the arrangement. Observers should collect data on fishing operations, including bycatch and discards; they should also conduct biological sampling of both the target and non-target catch, and collect other operational data as appropriate.

(6) *All parties involved in the arrangement should co-operate in developing and implementing scientific research programmes of relevance to stock assessment of target and non-target species caught by tuna fisheries in the WCPO.*

Points (1) and (2) refer specifically to data types that are required for stock assessment analyses and should be collected by flag states. Point (4) also refers to another important data type - length frequency data - although in the context of data storage rather than data collection. Nevertheless this is another data type that is important for stock assessment. The following Section (Section 2.3) therefore presents a brief review of data types required by international regional fisheries organisations, such as the WCPFC, to meet their obligations of fishery management advice based on the best scientific evidence available. The importance of data quality and issues relating to the promotion of data quality and of validation of data resulting from several types of data collection (e.g. logbooks, observer programs) is stressed in the following section. Finally, we discuss expectations regarding timely data reporting to the organisation and standards for data exchange (point (3) of the Technical Consultation list).

Options available for collecting these data (e.g. observer programs mentioned in point (5), the sampling plan mentioned in point (4) and the scientific research programs mentioned in point (6) of the Technical Consultation list) are discussed in Section 3. This section also discusses regional capabilities for collecting and handling various types of data, including the data repository system mentioned in point (4) of the Technical Consultation list. In this context we discuss technical capabilities and particularly some of the specific hardware and software needs of organisations undertaking this type of data storage and processing.

2.3 Data types

As described in Section 2.2.4, a number of recommendations were presented in the 1996 MHLC Technical Consultation, specifically relating to data collection, reporting and associated standards,

including a discussion of the overarching data types needed. The data types and the bodies charged with their collection are summarised below:

Data type	Responsibility for collection
Annual catch statistics	Flag state
Catch and effort data	Flag state
Logbook validation data	Flag state
Length data and associated biological information	All parties to the Commission through a co-ordinated sampling plan
Operational data, data on bycatch and discards, biological sampling of target and non-target species	All parties to the Commission through a regionally co-ordinated observer or port sampling programme
Research programmes of relevance to stock assessment which could broadly be interpreted as collection of biological, environmental and ecological data	All parties to the Commission through co-operative research

In discussing the data usually required to undertake stock assessment and other related scientific analyses that underpin management advice, we consider four principal categories of data:

- Commercial fishery data including catch and effort statistics, landings and transhipment records (both aggregated and fine-scale) collected on the basis of flag state submissions;
- Biological and ecological data, including by-catch information, length frequency data, sex, maturity, age data, environmental data etc.;
- Environmental data, including meteorological and oceanographic information;
- Economic data, including market information, trade data, commodity, consumption, fisher information etc.

In addition to the above data categories, we also recognise the category of technical data. This comprises the type of data collected on vessels characteristics and operational history that would be collected as part of a vessel registration process for use in standardising fishing effort data (see Section 1.2) and for other Commission purposes.

2.3.1 Commercial fishery data

Commercial fishery data represent the most fundamental data type required to monitor a fishery. It can also contribute, once a sufficient time series has been collected, to the assessment of stock status and potential. Annual catch estimates and annual catch rates offer a baseline for monitoring long-term trends in a fishery, whilst for stock assessment and other population modelling, finer scale data are usually needed. Catch and discard data are required for both target and non-target species, although direct commercial sources are usually limited with respect to the latter.

Regarding standardised terminology for catch statistics, the following terms are suggested Alverson et al. (1994), proposed at a bycatch workshop in Newport, Oregon (U.S.A) in February 1992 (McCaughran 1992):

- Target Catch — The catch of a species or species assemblage that is primarily sought in a fishery, such as shrimp, flounders, cods;
- Incidental Catch — Retained catch of non-targeted species;
- Discarded Catch — That portion of the catch returned to the sea as a result of economic, legal, or personal considerations;
- Bycatch — Discarded Catch plus Incidental Catch.

Landings and transhipment records comprise an important source of information with which reported catch data can be verified and validated; both in terms of absolute volume of catch and reported species composition. Additional sources of data used to verify reported catches, include observer programmes and port sampling programmes. Observer programmes are a particularly important source of data with which catches can be adjusted to reflect actual catch (all species landed on deck) rather than the proportion of catch that is retained.

Basic effort data, such as number of vessels and days fished must be supported with detailed information regarding vessel and gear attributes to allow standardisation of effort indices; this may be critical for estimating indices of abundance and for use in stock assessment models (e.g. surplus production models and MULTIFAN-CL models). Commercial sources of effort data, including details of vessel and gear attributes include operational logsheet reporting, vessel registers and vessel activity reports.

The following list identifies some of the key commercial fishery data types in the context of scientific research and the monitoring of catch and effort:

Commercial fishery data collection	
Data type	**Description/Source**
Annual catch estimates	Estimates of annual catch by gear and species. Catch is defined as all species landed on deck; discard as all species caught and subsequently discarded. Based on verifiable logsheet, unloading, or other commercial catch data sources (trade statistics etc.)
Catch data	Landings /unloading data Data on volumes by species, origin of catch (e.g. statistical area) Mechanism for confirmation of reported landed catch volume and composition. Catch data are whole (green) weight only. If fish are processed on board, independent collection of data on conversion factors is highly recommended.
	Port sampling Landed catch composition – volume by species
	Transhipment data Data on volumes by species, origin of catch (e.g. statistical area)
	Scientific observer data Detailed records maintained of catch composition (catch and by-catch species) Recorded on a haul-by-haul basis / by statistical area / as trip summary information
	Trade statistics Including catch documentation and trade documentation schemes Mechanism to verify legality and identify unreported catches (respectively).
Effort data	Vessel registers and activity reports Catalogue of operator, vessel and gear attributes (standardising effort) Trends in vessel activity
	Observer data Operational data recorded on a haul-by-haul basis Gear and vessel attributes, including any modifications to gear and setting practices Recording of other vessels sighted
	Surveillance reports Patrol reports used to verify licensed vessel activity and a means of identifying and recording IUU fishing activity
	VMS data Mechanism for verifying licensed vessel activity and can act as an M & E mechanism ensuring complete catch and effort enumeration (means of identifying missing data sets and intelligence prompting requests for data)
Catch and effort data	Flag state reporting based on vessel records – catch and effort logsheets • haul by haul • Fine-scale (by vessel per fishing operation) • Aggregated catch and effort data by time, area and gear strata (e.g. monthly 5° x 5° for longline and 1° x 1° for surface gears) In some cases individual vessel catch and effort records transcribed at port in a prescribed format (IATTC).
	Observer data Usually detailed records of catch and bycatch recorded at an operational level (haul-by-haul).

2.3.2 Biological and ecological data

Biological and ecological data types supplement commercial fishery data and are collected either through targeted research initiatives or through monitoring programmes such as port sampling and observer programmes. Regular monitoring programmes, particularly observer programmes, provide a valuable source of supplementary data, which are not usually available from commercial catch and effort data. These include: catch composition, discards of target species, incidental catch and discard of non-target species, details of fishery interactions with species of special interest (e.g. marine mammals, seabirds and turtles) and changes in operational factors or gear. Of particular importance for observer programs in tuna fisheries is the recording of bycatch, especially in view of the increased emphasis on ecosystem approaches in modern fisheries management policy.

Data collected in support of age and growth studies include length data, otolith samples and tag and recapture data. Tag and recapture data together with genetic data also constitute an important source of information on stock structure. Tuna ecology studies are reliant on detailed ecosystem information with which food web structures may be modelled; data sources include samples of stomach contents and muscle / tissue biopsy samples.

Biological and ecological data collection	
Data type	**Description/Source**
Bycatch, discard and other data	Observer data Number and/or weight of discarded catch (target and non-target catch) Incidental mortality data of species of scientific interest (e.g. marine mammals, seabirds, turtles)
Length data	Observer sampling Information relating to unsorted catch according to defined sampling protocols (protocols differ based on scientific objectives (e.g. development of age length keys etc.).
	Port sampling Collect length frequency information based on samples of landed catch.
	In some cases crew record length frequency information of target species
Movement and growth data	Tagging programmes Supported by observer and crew records of recapture and sampling for ageing material
	Fishery independent research – aerial surveys (ICCAT/IOTC)
Morphometric data	Observer sampling Morphometric information, conversion factor information etc.
	Port sampling Additional information to length data collected on occasions
	Fishery independent research
Ecological data	Observer sampling Stomach contents, genetic data, etc Anecdotal information may provide qualitative data to inform future research.
	Fishery independent research Details of species interactions including predator prey relationships etc. Direct effects on non-target species and habitat. Details of species interactions including predator prey relationships etc. Direct effects on non-target species and habitat.

2.3.3 Environmental data

Tuna distribution and abundance have been shown to be sensitive to environmental variability. In particular, the El Niño Southern Oscillation (ENSO) appears to have important consequences both for spatial distributions and migrations of the tuna populations and for their level of recruitment and biomass. Environmental data are therefore important for the determination of effective effort, in longline and surface fisheries, and in monitoring the extent and the influence of, oceanographic and meteorological processes on tuna fishery stock dynamics, migrations and production.

2.3.4 Economic and sociological data

The Convention is very clear regarding the consideration of sociological and economic criteria in the application of management measures. This stems primarily from the need to take into account the special requirements of developing States in the Convention Area, particularly small island developing States (Article 5(b)), both in terms of the allocation of allowable levels of catch and effort (Article 10(3)), and inclusion in the scientific process (Article 30(3)).

In terms of scientific activities in support of these objectives, however, the Convention mentions only the collection and evaluation of economic and other fisheries-related data and information relevant to the work of the Commission (Article 10(1j)). To give effect to these objectives, the Commission will need to consider what specific information will be needed to support the application of the type of criteria listed in Article 10(3).

Fisheries managers and policy makers increasingly recognise the importance of social and economic information in fisheries management. The collection and evaluation of social and economic data, when integrated with fishery and biological data, can provide an important source of advice relating to optimal levels of fishing, from a bio-economic point of view. This is particularly important for small island developing States (SIDS), where the fishing industry is often regarded as the cornerstone of the economy contributing socially through employment and protein and directly to the economy through contribution to GDP and generation of foreign exchange.

This increasing trend in the demand for economic data has resulted in a number of organisations, most notably the CWP, stressing the need for collaboration between fishery statisticians, economists and managers towards determining the types of data necessary to quantify the social and economic contribution of fisheries.

2.3.5 Technical data

The concept of a vessel register is now widely accepted as a valuable means of collecting vital information on vessels technical details and capacities (important for analysis of catch per unit effort data) and also for tracking vessel ownership and standing in terms of compliance with national and international management regulations. Fishing operators seeking to access resources managed under a regional fisheries arrangement should be required to register with the regional organisation and provide the required information on their vessel, company, master and catches. In Part V, Article 24 of the Convention text, vessel register information and procedures are discussed. Information requirements set out in Annex IV of the Convention:

1. *Name of fishing vessel, registration number, previous names (if known), and port of registry;*
2. *Name and address of owner or owners;*
3. *Name and nationality of master;*
4. *Previous flag (if any);*
5. *International Radio Call Sign;*
6. *Vessel communication types and numbers (INMARSAT A, B and C numbers and satellite telephone number);*
7. *Colour photograph of vessel;*
8. *Where and when built;*
9. *Type of vessel;*
10. *Normal crew complement;*
11. *Type of fishing method or methods;*
12. *Length;*
13. *Moulded depth; Beam;*

14. *Gross register tonnage;*
15. *Power of main engine or engines;*
16. *The nature of the authorisation to fish granted by the flag State;*
17. *Carrying capacity, including freezer type, capacity and number and fish hold capacity.*

These data surpass FAO standards, but should nevertheless be regarded as an agreed framework upon which more specific information requirements can be established. It is crucial that standard units of measurement are agreed to facilitate harmonisation of data from different sources. This is particularly important, for example, with metrics that may be important for assessing fishing effort, such as Gross Registered Tonnage, which should be standardised to the international convention, not based on national conventions, which vary. Standard codes for potentially ambiguous data types are also an important component of vessel registers. These are particularly applicable with regard to vessel type and where operational details are required describing gear, processing facilities etc.

In addition to the information included in the list above detailed information is commonly submitted regarding: fishing gear attributes, including details of power blocks, winches, net type and configuration, hook size etc.; vessel technology in addition to communications equipment such as navigational equipment, fish finding equipment, EPRBs, transceivers (VMS) etc.; and, fishing vessel support, which may take the form of support vessels, helicopters etc.

2.4 Data quality

Data quality control is applied at two points in the data capture and handling process. Firstly there is verification of data submissions prior to insertion into the database. Secondly there are internal mechanisms to ensure the integrity of data in the database is maintained.

2.4.1 Data verification

The verification of data is essential to ensure that data are accurate, complete and give a true indication of the state or value of the factors under consideration. The problems associated with the collection of fisheries data mean that the risks of collecting erroneous or inappropriate data are very high without careful and statistically valid design and monitoring.

Standard data import routines can facilitate traditional manual crosschecks of reported data with independent sources and ensure data integrity during data entry. Different types of data will need to be verified in different ways. Some examples of methods to verify data include:

- Checking logbooks against landings data (e.g. sales notes);
- Sampling catches for species or grade composition;
- Comparing landings statistics with certificates of origin, trade and commodity production statistics (e.g. processed fish) and similar sources of information;
- Inspecting data collection methods by statistical staff;
- Interviews with fishers;
- Observer schemes or inspections;
- Reporting from sea on retained catch on entering and leaving the fishing zones;

- Using vessel monitoring systems, such as transponders, to monitor the position, catch and activities of vessels;
- Instituting airborne and shipboard surveillance, together with the boarding of vessels.

In cases where fishery-independent data, such as stock abundance indices from research surveys, are available, it is possible to use these as an independent check on CPUE indices based on commercial fishery catch and effort data. In cases of suspected serious misreporting of catches, it is even possible to use such fishery-independent data to obtain estimates of the commercial catches.

At the macro-level (typically national), food balance sheets can be used as an overall check of the consistency between production, utilisation, trade and consumption statistics. For such an exercise, it is necessary to convert all figures into live-weight equivalent units using appropriate conversion factors. Total fish production from capture fisheries and aquaculture, less quantities used for non-food purposes (e.g. fishmeal production) plus imports minus exports should correspond to the domestic food fish supply. It is usually expressed in per capita terms by dividing by the population size. The average per capita fish supply can then be compared with fish consumption estimates derived from food surveys. Large deviations from food survey results or large fluctuations from year to year suggest that there are problems with some of the statistics used in the calculations (FAO, 1998).

2.4.2 Data Quality Control

2.4.2.1 Overview

Data quality control is a key element of ensuring adherence to data quality standards. In this context, we consider data quality control in terms of its utility to managers, scientists and other interested parties. The data collected must be rational in order to form the basis of standard report summaries (weight of catch, location of catch, CPUE, etc.) against which progress of the fisheries is monitored or managed (output control, stock assessment, etc.).

The main issue to be addressed in data quality control is the identification of 'outliers' in the input data; e.g.: are catches / effort reported by any one vessel consistent with other reports coming in from vessels operating within the same fishery, at the same time, general location, with the same gear? How consistent are these data with historical pictures of how data have accumulated within any particular fishery? (See also discussion of the types of error types.) This requires some detailed level of understanding about 'average' expected conditions within any one particular fishery, under a given set of circumstances. For example, distributions of previous years' catch and effort data may be used to establish 'thresholds' above or below which input data are flagged (say, 95th and 5th percentiles - effectively, 'zero tolerance') as possibly suspect. Alternatively, depending on how data are assembled, individual input data sheets can be compared against current data accumulating from the fishery. 'Outliers' may also appear on position reports associated with catch records compared with detailed management measures, including conditions of licence, gear restrictions, area restrictions etc. which may be in force. These can be identified at the time of data entry in the same way as the genuine outliers described above.

It is also important to consider the 'completeness' of the data. On the assumption that any one vessel must submit a fishing report or a non-fishing report, the time series of accumulated data should be checked at the level of the individual vessel in order to identify any unaccounted gaps in the date sequence. This requires, for example, information on fishing plans and license periods for individual vessels.

The primary tool of monitoring data quality within a database is through database integrity constraints. Three mechanisms exist for implementing database integrity constraints dependent on the volume of data being processed. These are real-time, transaction and batch.

Real-time error trapping has become much easier in the last few years with the increase in speed of PC-based applications and their increased complexity. Single fields can now be checked within the data entry application against a set of possible values or that an entered value is within a defined range. Fields can also be checked relatively simply against each other as they are entered. For example take the latitude and longitude entered for the start and end of a haul. It is now quite a simple process to take the two positions, calculate the distance between the two (using the Great Circle functions) and check that this is within an appropriate range. For a wide variety of fields, pull-down menus of appropriate values can be added, e.g. only "N" or "S" can be entered for the latitude hemisphere field of a position.

Transaction processing occurs at the end of a single unit of data entry, i.e. a logsheet. Here error trapping can be implemented for a wide variety of fields. For instance, it is common to run a quick check to see that the values entered for a particular entry add up correctly to match an entered total. If they don't, the row is not submitted to the database and the user is prompted to check the data before proceeding to the next row. Another mechanism used for transaction processing is that of double entry or double keying of data. Normal practice for the double entry of data is to enter the data twice, i.e. a set of logbooks will be entered once by the first data entry person and then the entire set will be re-entered by a second independent data entry person. The two datasets will then be compared at the end of the entry of the second data record and any inconsistencies resolved by reference to the original paper record. This has been found to reduce substantially simple errors caused by e.g., operator's inability to read data on a data sheet, transposition of numbers, missing decimal points etc.

The double entry method is expensive, however, and requires a number of personnel to be available to enter one single dataset, it also doubles the size of the database. The compromise solution is double typing where each field in a data set is typed twice during entry before the user is passed onto the next record. The previous typing is obscured and any differences are highlighted at the end of the second row and resolved against the paper record. Only one correct set of data is retained in the database and one data entry clerk is needed. Probably the simplest mechanism at this level of data checking is to make the data entry clerk do a simple visual check of the data entered at the end of each record. Batch processing is similar to transaction processing, but occurs after a number of rows have been entered into the database. During batch error processing a series of complex analytical routines are run automatically, usually overnight or at weekends when data are not being entered. Data are then flagged as having passed or failed the checks. Data having passed the test are available for analysis immediately. Data having failed one or more of the error checks are flagged and will need to be checked by the user. It is possible to implement a system of data flags that allow a number of flags to be applied to a particular data record, to track where in the record errors have occurred. For example, data can be checked for a large array of potential problems including CPUE within a particular range, species average weights within ranges, and species composition not skewed towards by-catch species that may in fact be targeted against regulations. Each of these is allocated a unique flag, which is applied to the data error flag field for the record. In this way multiple errors can be traced for each record. It is quite common for errors to cascade through a record; once one field is wrong, the user continues to enter data incorrectly until the row is completed. This mechanism easily highlights these occurrences.

2.4.2.2 Types of errors

There are four types of data errors that commonly occur in database systems. These are completeness, consistency, currency, and accuracy. Completeness is a simple Boolean description of whether a datum has been filled or not. A datum is consistent if its value satisfies a set of constraints such as formal rules, logical requirements, or relational requirements, vis-à-vis other variables. A datum is non-current or out-of-date if its recorded value was true in the past but no longer agrees with the present true value. Finally a datum is accurate if its recorded value agrees with its true value.

In the case of the majority of fisheries data being collected, currency is not an issue as these are single entries recorded and stored that are not modified after storing (unless other types of errors are found). Completeness and consistency can both be trapped very easily by the mechanisms described above. Accuracy in many cases will be trapped but is the most likely of all errors to go undetected.

2.4.2.3 Numbers of errors allowable per unit

The number of allowable errors, depends heavily on the context - for example what is considered to be a unit, the type of error, and how sensitive the subsequent analyses are to errors in the data. In a perfect world, there would be time to resolve all issues relating to anomalous or spurious data. In practice, this is not the case in most fisheries departments.

The number (and types) of errors that may be tolerated varies between users in terms of the effect they have in any subsequent use. Under a policy of zero tolerance of errors, no data that have failed a quantitative range test can be loaded into the live system. This extreme level of quality control might be implemented, for example due to the potential impact of erroneous data on a statistical model used to monitor and manage the fisheries in real time (e.g. for within season TAC monitoring). Range testing eliminates most quantitative errors in the data. Obvious outliers (e.g., orders of magnitude) should not be allowed, but see note above concerning concept of 'flagging.' Redman (1992) estimated that in the US a typical payroll record has a 1% chance of having one or more errors and a typical US billing record as high as 2% - 7% of having errors. These are in many cases regarded as being within acceptable bounds. Primary errors in fisheries data have been set previously at levels in the region of 85% of all records are 95% or more correct. With modern data systems it should be possible to attain a much better level than this.

For the most part error trapping is only capable of detecting and fixing errors made during data entry. There will be a number of errors that are made during the recording phase that it may not be possible to fix, although a proportion of these errors can be flagged and excluded from the data analysis, if appropriate (see methods above).

There are a number of statistical procedures (using the hypergeometric distribution) that, given the sample size (i.e. total number of records) and the probability of errors (taken from a subset of data visually checked against the entered data), can estimate the confidence limits for a particular dataset.

2.4.2.4 Methods used to rectify errors

After potential errors have been flagged in the database, the most common and best recourse for sorting out data problems is to check the entered data against the original hardcopy paper record. If this is not available or an error in the paper record is the source of the problem, a number of options are still open to rectify the error. Values can be compared against past and future values collected for the same data field. It may show that the same value has been entered each day for the field and on one occasion a different value was entered but it was more likely to be the same as previous values. Erroneous or data that have been modified after looking at possible sources of error can also be easily excluded or partially excluded from analysis datasets by using the same set of data flags described earlier.

Flagged data can be held in a temporary 'pending' database while source documents are checked usually using an index system such as pre-numbered log-book sheets, which could be an index generated by a document management system. This means that at any one time, the live database holds only those data that pass range checking and input control. The source of error must be investigated before the data can be transferred into the live database, if necessary, by recourse to the originators of the document. An alternative solution that is commonly used throughout large database systems is that records may be flagged with a code whose value indicates at which particular level any one record failed range checking. Data will be recorded in the '*live*' database but it is then the responsibility of the administrators and users of that database to make some rational decision concerning its usage and applicability for each analysis

conducted, e.g. records where the catch data is flagged as erroneous would not be used for estimating total catch.

2.4.2.5 Policies for reviewing data

The data management section of an RFMO must be tasked with continually checking the validity of data, and must correspond with data originators to answer any discrepancies that appear in the data. This can be a costly and time-consuming task, but its importance cannot be understated. One important consideration is that the origin of official data is often known to only a few national officers. Requests for clarification several years later, when those individuals have moved on, is much less likely to lead to a resolution of the problem than questions raised immediately following submission of the data. If investment in a data management section of an RFMO is not high, a large number of historical records are likely to have low quality reliability, because of the legacy effect of delayed checking.

An essential element to an effective reviewing mechanism is the identification of data correspondents. The STATWG of the ISC recently recommended that data correspondents be identified for each Member. Data correspondents will be responsible for ensuring the quality of data collection and submissions by Members. Data correspondents will constitute the primary contact with whom the ISC will communicate in the event of data related queries.

2.5 Initiatives towards standardised data collection and reporting in the WCPO region

Significant steps have been taken towards the standardisation of catch and effort logsheets within the WCPO region:

- Through SPC/FFA cooperation in the Tuna Fishery Data Collection Committee; and,
- Through the work of the Statistics Working Group of the SCTB.

First meeting of the Data Collection Committee was held in December 1995. At the time, an array of logsheets was used throughout the region. The extent to which the situation complicated the task of data processing by the OFP and the FFA was recognised and as a result standard logsheets were designed and introduced to both the domestic fleets of SPC and FFA member countries and the DWF fleets with which they have access agreements. Subsequent Data Collection Committee meetings have followed (December 1996, December 1998 and December 2000) where an ongoing process of review has continued and standard observer forms, port sampling forms and unloading forms have subsequently been designed; translated versions of logsheets have been made available on the SPC-OFP website in French, Japanese, Korean, Mandarin and Spanish.

A special session of the SCTB Statistics Working Group was held prior to the twelfth meeting of the SCTB in 1998 (Anon., 1999a) where minimum logsheet standards were established. The minimum standards reflect the need to differentiate between data that are essential and data that are desirable. Reviews of logsheets used in the region have continued to ensure conformity with the agreed minimum standards.

Existing regional (SCTB agreed) logsheets include:

Logsheets	Languages	Instructions
Longline	English, French, Japanese, Korean, Mandarin	English, French, Japanese, Mandarin
Pole and line	English, French, Japanese	English, French
Purse seine	English, French, Spanish	English, French, Spanish
Shark longline	English	English

A summary of the status of South Pacific Regional logsheet implementation is included in Anon. (2001). Although implementation amongst FFA and SPC flagged vessels has in the majority of cases been successful, adoption by DWFNs has been limited.

Observer data

Observer data collected for research purposes include primarily species composition of target species, catch data for non-target species, and length data.

A series of forms have been developed for observers aboard longline, pole and line and purse seine vessels. In addition there are a number of general forms completed by observers aboard all vessel types. Each form is accompanied by detailed instructions defining data format and codes as required. All forms include instructions that guide observers through the collection and sampling process with the exception of the longline forms, which provide detailed instructions for form filling only. Existing regional observer data collection forms are listed below:

General Forms	Field data collection instructions
	GEN-1 - Vessel and aircraft sightings and fish transfer log
	GEN-3 - Vessel trip compliance record
	GEN-6 - Pacific regional pollution report

Longline forms	LL-1 - Longline general information
	LL-2 - Longline set information
	LL-3 - Longline haul information
	LL-4 - Longline catch monitoring
	LL-5 - Longline conversion factors

Pole and line forms	PL-1 - Pole and line general information
	PL-2 - Pole and line daily log
	PL-3 - Pole and line catch details

Purse seine forms	PS-1 - Purse seine general information
	PS-2 - Purse seine daily log
	PS-3 - Purse seine set details
	PS-4 - Purse seine length frequency
	PS-5 - Purse seine well loading

No regional manual has been developed combining instructions for collection and form filling with roles and duties of observers, statistical sampling techniques, standard classification codes, conduct of observers, safety at sea etc.

Unloading & Port sampling data

Logsheets and associated guidelines have been developed to harmonise data collection and data recording protocols throughout the region. Similarly, SPC member agencies are encouraged to use the regional logsheets and guidelines when collecting port-sampling data. This ensures standard sampling practices, data collection procedures, and a standardised format for reporting. All forms are accompanied by instructions, with the exception of the *Monthly summary forms for longliners*, as detailed below.

Fishery	**Types of forms**	**Language**
Longline	Unloading Form	English, French (no instructions)
	Port sampling form	English, French (no instructions)
	Monthly summary form	English (no instructions), French (no instructions)
Pole and line	Unloading Form	English
	Port sampling form	English
Purse seine	Unloading Form	English
	Port sampling form	English
	Well unloading form	English
Troll	Port sampling form	English

A detailed port-sampling manual has been developed by SPC-OFP, which provides background information for port samplers explaining why data are collected, how samplers should comport themselves, standard measurements, sampling protocols and data collection procedures and how data should be recorded. The manual places particular focus on purse seine, pole and line and longline vessel port inspection.

2.6 Timely exchange and reporting

Timely reporting of fishery data directly influences the capacity of an RFMO to provide appropriate and timely management advice and disseminate information on the status of the fishery in question. Three contributing factors influence the timely exchange and reporting of fishery information, these include:

- Agreement on the criteria used to allocate responsibility for data reporting;
- Agreement on a framework for data reporting, including reporting schedules and defined lines of communication; and,
- Agreement on a common format for data reporting and information exchange.

2.6.1 Fishery data reporting responsibilities

Although international instruments such as the UNFSA allocate responsibility for fishery data reporting on flag State, areas of uncertainty remain. Amongst others, these relate to circumstances arising from DWF fleet operations under access agreements and joint venture and charter arrangements. At its Eighteenth Session, the CWP revised its existing criteria in an effort to address these uncertainties, as detailed below:

The flag State of the vessel performing the essential part of the fishing operation shall be responsible for the provision of catch and landing data.

Where a foreign flag vessel is fishing in the waters under the national jurisdiction of another State, the flag State of the vessel shall have at all times the responsibility to provide relevant catch and landing data. The only exceptions to this shall be:

> *(a) Where the vessel undertakes fishing under a charter agreement or arrangement to augment the local fishing fleet, and the vessel has become for all practical purposes a local fishing vessel of the host country;*
>
> *(b) Where the vessel undertakes fishing pursuant to a joint venture or similar arrangement in waters under the national jurisdiction of another State and the vessel is operating for all practical purposes as a local vessel, or its operation has become, or is intended to become, an integral part of the economy of the host country.*

In any situation where there is uncertainty as to the application of these criteria, any agreement, charter, joint venture or other similar arrangement shall contain a provision setting out clearly the responsibility for reporting catch and landing data, which shall be reported to the flag State, and, where relevant, to any coastal State in whose waters fishing operations are to take place or competent sub-regional, regional or global fisheries organisation or arrangement.

A number of regional bodies have adopted the standards defined by the CWP including the OFP. It is strongly suggested that the Preparatory Conference consider the definition agreed by the CWP. However, in the context of Commission needs, agreement will need to be reached regarding data reporting responsibilities, particularly those relating to DWFN operations, not least if difficulties of duplication are to

be mitigated. This is of particular importance given the status of data reporting for certain fleets in the WCPO, where coastal states, rather than the flag states, are currently the best or only source for catch and effort logsheet data. For example, the coverage of Korean purse seine vessels by logsheet data compiled by Korea is less than 40% for 1999 (Koh et al., 2002), the most recent year for which coverage is stable, whereas the coverage by logsheet data provided to the OFP by SPC member countries is 98% (Lawson, 2002). This situation for Korean purse seine vessels and other DWFNs may change over the long term, but at least in the short term, it is likely that the Commission will have to rely on data compiled by coastal states.

2.6.2 Schedules for data submission

An important measure to ensure timely data submission is agreement on a framework for data reporting, which might include data specific schedules and reporting protocols. The nature of data collected and its importance with respect to the formulation of management advice and associated measures will generally dictate the regularity with which reporting should take place. Nevertheless, the development of a clearly defined reporting schedule with associated mechanisms to monitor and enforce data submissions should be considered.

Closely associated with the development of a data-reporting schedule should be the allocation of a point of contact responsible for data submissions (See Section 2.4.2.5). The identification of an individual responsible for data reporting is crucial not only for monitoring purposes but also for feedback and review, particularly where discrepancies in reported data are identified.

As discussed in Section 2.4.2.5, the ISC has recently endorsed the use of data correspondents, whilst the OFP have established a system whereby designated contacts are assigned for all countries / territories reporting data. Data handling is monitored using a *Data Registry* database; data submissions are logged and receipt of information is automatically generated and sent to the designated contact by email. The system is reciprocal in that designated contacts are able to access to secure pages of the OFP website and obtain information on the status of data processing, specific to their submissions.

Given the number of States likely to report to the Commission, it will be critical that a reporting framework be established including provision for an appropriate response if discrepancies in data are identified or in the case of delays in data reporting.

2.6.3 Data reporting formats

The range of mechanisms available for data reporting has developed significantly from traditional hard copy formats (e.g. STATLANT forms) to electronic solutions. Considerable emphasis has been recently placed on the use of electronic media for data submission. Electronic reporting formats that are independent of proprietary software have been developed and their use is encouraged by the FAO. The use of FTP sites offers a fast and secure mechanism for exchange of large data sets. These solutions are fast becoming the norm and it will be important for the Commission to consider defining reporting formats which maximise developments in the IT environment whilst acknowledging member State capabilities.

An approach similar to that taken by CCAMLR may offer an effective solution; standard reporting formats are clearly defined both for hardcopy and electronic data reporting. Whilst electronic data reporting is encouraged, mechanisms are in place for hardcopy data reporting and subsequent data entry and processing. In this way, standard formats are ensured whilst sufficient flexibility is maintained in line with

different levels of member states' data handling capacity[3]. This approach is reflected informally by the CCSBT, where it is felt that too prescribed a format for data reporting may have a negative influence on the timeliness and completeness of data reporting. As long as standards are maintained through time in reporting formats and sufficient information ("metadata") accompanies data describing them, in the short term, the benefits of standardised reporting formats may be outweighed by the need for timely reporting (pers. com. Bob Kennedy, CCSBT). A more prescribed standardised format may be more appropriate with regards Commission needs, not least given that the likely volume of Member data submissions will be significantly higher than is the case for the CCSBT.

Alongside the growth in the use of electronic media, significant emphasis has been placed on the development of international standards for describing data. Metadata is *"information about data"* and can include characteristics about the data such as the content, accuracy, reliability and the source. Metadata provides the mechanism to describe data in a consistent form that allows users to gain a uniform understanding of the content and fitness for purpose of datasets. Metadata can accompany a dataset when it is transferred to another computer so that the dataset can be fully understood, and be used effectively. The FAO, through FIDI, are currently developing a global standard for fishery metadata, which will in effect offer a baseline set of common terms and definitions that describe fishery data. Within the WCPO region, the OFP routinely includes metadata when disseminating information; equivalent use of metadata by the Commission would increase the sustainability of electronic data and should therefore be considered by the Commission.

2.7 Summary

The Convention text and the MHLC consultation report present overarching guidelines for data collection, verification and timely exchange and reporting. In addition, clear reference is made to associated standards and obligations presented in Annex I of the UNFSA. In support of this guiding instrument and others, the FAO cooperates with RFMOs, particularly through the CWP, to standardise reporting forms, procedures, definitions, classifications, and other related documentation.

It is strongly recommended that the Commission adopt standard codes and coordinate with FAO and the CWP in their development. Where it is necessary to adopt unstandardised codes in the short term, databases can easily be configured to accept temporary codes for later replacement with standard codes.

In the development of standards applicable within the region the Commission will need to consider the particular situations of developing countries as these countries may not be readily able to implement standards designed in the context of more developed fisheries.

It is essential that the initial system of standards and classifications adopted by the Commission must be capable of meeting immediate data needs and flexible enough to meet those needs which might evolve over time.

Commission participation in the FIGIS programme is recommended as this will offer member States a conduit for meeting international reporting obligations, according to commonly shared data standards.

PrepCon consideration is also recommended in relation to the establishment of a system of review and evaluation of data quality and needs. The rigorous and time-consuming process to achieve full ISO certification for data collection management standards will not likely serve the purpose of the

[3] The CCAMLR *Fishery Data Manual* is published in English, French, Russian and Spanish.This manual describes CCAMLR procedures for collecting, submitting and disseminating catch, effort and biological data for fisheries in the CCAMLR Convention Area. Information is provided on deadlines for data submissions, data requirements for each fishery, data forms and guidelines for their completion, and definitions of data fields and codes. Procedures for collecting and submitting fishery observer data and reports are described in the CCAMLR *Scientific Observers Manual* (http://www.ccamlr.org/pu/e/sc/fish/intro.htm).

Commission. However, a less rigorous procedure that follows the ISO format will provide an opportunity for the PrepCon to fully evaluate the details of sampling requirements in the context of data quality needs.

The specifics of long-term Commission data requirements for scientific purposes have yet to be agreed. Nevertheless, priority fishery data in the context of the PrepCon have been established and these same priority data types are likely to be reflected in Commission data needs, at least in the short to mid term. These data include: annual estimates of catch; catch and effort data (the scale and resolution are yet to be established, although data at the finest scale possible are recommended); and size composition data (length frequency).

Where the Commission requires information in addition to fishery data (e.g. economic and sociological data), it should seek to identify appropriate data to quantify indicators in cooperation with the CWP, which has already taken steps to address these issues.

Although international instruments such as the UNFSA allocate responsibility for fishery data reporting on flag State, areas of uncertainty remain. In the context of Commission needs, consensus will need to be met regarding data reporting responsibilities, particularly those relating to DWFN operations. It is strongly suggested that the Preparatory Conference consider the definition agreed by the CWP.

An additional consideration relates to the status of data reporting for certain fleets in the WCPO, where coastal states, rather than flag states, are currently the best or only source for catch and effort logsheet data. This situation may change over the long term, but at least in the short term, it is likely that the Commission will have to rely on data compiled by coastal states.

Significant steps have been taken towards the standardisation of fishery data collection, compilation and dissemination within the WCPO region through the efforts of the Statistics Working Group of the SCTB and through SPC/FFA cooperation in the Tuna Fishery Data Collection Committee.

Data collection standards developed and implemented within the WCPO region include: catch and effort logsheets; observer data collection forms; and port sampling and unloading forms. The forms have undergone regular review and have been widely implemented by SPC and FFA members and DWFNs active in their respective territorial waters. It is strongly recommended that the Commission consider the logsheets and forms as a baseline from which Commission data collection forms can be developed in the long-term.

The verification of data is essential to ensure that data are accurate, complete and give a true indication of the state or value of factors under consideration. Landings and transhipment records comprise an important source of information with which reported catch data can be verified and validated. Additional sources of data used to verify reported catches, include observer programmes and port sampling programmes. The adoption of standardised data collection forms will facilitate data verification significantly.

Significant Commission investment is recommended in the verification and quality control of data submissions. The Commission should consider the establishment of a framework for data submissions including the identification of data correspondents and the definition of schedules for data reporting. The identification of an individual responsible for data reporting is crucial not only for monitoring purposes but also for feedback and review, particularly where discrepancies in reported data are identified. The adoption of such a framework will facilitate the Commissions capacity to verify and validate data submissions and disseminate accurate and complete data in a timely fashion. This often costly and time-consuming task has high importance.

Standard data quality control approaches are now commonplace in data handling; it is recommended that quality control standards be set which incorporate these mechanisms, including: the double entry method of data capture (where hardcopy data are processed); real time error trapping; and transaction processing,

Considerable emphasis has recently been placed on the use of electronic media for data submission; electronic solutions to data exchange are fast becoming the norm and it will be important for the Commission to consider defining reporting formats which maximise developments in the IT environment whilst acknowledging member State capabilities.

An approach similar to that taken by CCAMLR may offer an effective solution. Whilst electronic data reporting is encouraged, mechanisms are in place for hardcopy data reporting and subsequent data entry and processing. In this way, standard formats are ensured whilst sufficient flexibility is maintained in line with different levels of member states' data handling capacity.

The Commission should consider the inclusion of metadata relating to the exchange of electronic fishery data, which will not only facilitate compatibility with international standards but may also influence the sustainability of data compiled by the Commission.

3 Technical capabilities, security, and data sharing policies

The Convention requires that the Commission collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programmes (Article 5(i)).

In this section we evaluate the technical capabilities, data security, and data-sharing policies of participants and organisations within the region where the types of data of interest to the PrepCon are routinely handled. For contrast with Western and Central Pacific regional organisations, we also evaluate how these matters are handled elsewhere in order to provide an objective assessment of regional standards. In addition we will evaluate the capabilities of specific candidate organisations in the region with respect to the three elements listed above, in an effort to address the feasibility of contracting out interim data services and, conclude with a shortlist of candidate organisations that meet the criteria.

3.1 Data Collection

Options for fishery data collection are discussed in relation to data type in section 2.3. In this section we review some of the mechanisms commonly used to collect fishery data. The accepted mechanism to ensure both harmonised and consistent data collection is through the use of standardised data collection forms and/or formats (e.g. logsheets). These are usually supported by detailed instructions or manuals, which define data collection procedures / sampling protocols and standard classification codes to ensure compatibility, consistency and quality of reported data.

3.1.1 General fishery data collection techniques

3.1.1.1 Logbooks and data forms

The logbook or logsheet is the accepted data collection form used to record catch and effort data. In addition to catch and effort data, vessel logsheets and logbooks can offer a means of collecting additional information in a standardised manner, including information concerning vessel and gear attributes, discards etc. Other commonly used data collection forms include: unloading forms, transhipment forms, port sampling forms, observer forms and data transcription forms.

Standard approaches to the design of data collection forms are discussed in the FAO Handbook on data collection. The key to effective data collection form layout lies in the relative simplicity with which forms can be completed and that data processing methods are reflected in design and layout. Some additional considerations for the design and implementation of data collection forms include:

- The identification of essential and desirable data types through prioritisation of essential data against those data types which can be collected and *de facto,* the extent to which it is practical for additional information to be collected;
- Evaluation of the scale and precision of required data;
- The use of standard terms / classification codes / standard measurements / units etc. which facilitate harmonised data collection and data recording (where appropriate these standards must be defined with international reporting requirements in mind);
- The parallel development of detailed instructions, including statistically valid sampling protocols where appropriate;
- Linguistic requirements of both collection forms and instructions should reflect the needs of those tasked with data collection; and,
- Appropriate mechanisms for review.

With regard to the medium used, data collection forms are designed both in hardcopy format and in electronic form, either as printable copies or as data entry forms which can be uploaded directly into a data management system (database or spreadsheet files). It is becoming increasingly common to record data electronically rather than on paper. For instance, almost all research surveys and observer data are now collected on computers at sea, although there may be an intermediate paper stage if the data are being collected in a wet environment such as on the deck or in the factory. It is still probably the case that most fishing masters will prefer to use paper to collect their data, but the time is fast approaching when we can envisage the use of VMS data to collect some fisheries data.

3.1.1.2 Observer programmes

At the micro-level it is usually extremely useful to have observers on at least some vessels. Observers provide feedback on fishing practices, processing practices and the level and species composition of discards. Care must be taken to try to identify changes in fisher behaviour when an observer is on board. This is very difficult to do (for obvious reasons) but some experimental designs are available, especially from fisheries with good levels of observer coverage.

International observer programmes (e.g. the CCAMLR Observer Scheme) offer some advantages over national observer programmes. The quality of the observations from such programmes may be higher, standards are consistently applied across the entire fleet, and the added transparency increases the confidence that all parties have in the data.

Observer responsibilities have components of collecting scientific information and assuring compliance with regulations. The distribution of tasks among these components affects the observers' relationship with the fishing industry. Some national and international programmes, such as CCAMLR, use observers only to collect data. The Australian programme uses observers to collect scientific data and compliance data related to permits and marine pollution.

In point (e) of Article 28 the Convention text states that:

> *the activities of observers shall include collecting catch data and other scientific data, monitoring the implementation of conservation and management measures adopted by the Commission and reporting of their findings in accordance with procedures to be developed by the Commission;*

The observer data provided to the OFP are checked for data quality both manually prior to data entry and by the data entry and data importing software (Lawson et al. 2002). In observer programmes for which technical support is provided by the OFP, a purse seine and longline debriefing form allows the national observer co-ordinator (or a senior observer) to check each data field systematically and to query the observer as to whether they have followed the correct sampling protocol. The observer database software also screens the data in order to set a number of data quality flags that indicate whether the data can be used for various analyses, such as the estimation of catches of non-target species.

However, an examination of observer samples of the proportion of bigeye in the catch taken by purse seine vessels revealed serious problems with data quality (Lawson, 2002b). Supervisors evaluated the reliability of observers and the results indicate that only 83 out of 151 observers (55 percent) were considered to be reliable. Observer training programmes have since been conducted by the OFP and it is considered that the reliability of port samplers has as a result improved considerably (Tim Lawson, OFP, personal comment).

3.1.1.3 Port sampling programmes

The port sampling data provided to the OFP are checked for data quality both manually before data entry and by the data entry software (Lawson et al. 2002). For example, missing information are flagged; length histograms are generated for each sample to identify falsified data; and floating object sets by purse seiners are checked for the presence of bigeye tuna.

The quality of port sampling data varies among the national programmes. An examination of port samples of the proportion of bigeye in the catch taken by purse seiners revealed serious problems with data quality (Lawson, 2002b). Supervisors evaluated the reliability of port samplers, other than those of the National Marine Fisheries Service and Japan, and the results indicate that only 19 out of 129 port samplers (15 percent) were considered to be reliable.

Significant steps have since been taken by OFP to address this problem; several observer training programmes have been conducted and as a result the capacity of samplers to identify juvenile bigeye tuna in purse seine catches is judged to have improved considerably (Tim Lawson, OFP, personal comment).

3.1.2 Regional and international fishery data collection programmes

We have identified a number of international programmes responsible for the collection, compilation and dissemination of fishery data both within and outside the WCPO region. Table 3.1 provides a brief description of each of the WCPO and other international organisations identified. A discussion follows outlining the data types handled and the mechanisms employed in collation and collection of fishery data. The summary information was compiled on the basis of available literature, supplemented by information collected through telephone interviews and a structured pro-forma. In addition to the information presented here, Lawson (2002) provides the most recent and complete inventory of tuna fishery data collection, compilation and dissemination for nations in the WCPO currently available.[4]

Table 3.1 WCPO and International organisations responsible for fishery data collection and compilation

Organisation	Description
SCTB	The Standing Committee on Tuna and Billfish. The SCTB provides a forum for scientists and others with an interest in the tuna stocks of the western and central Pacific region to meet to discuss scientific issues related to data, research and stock assessment. It was established in 1988, as an advisory body to the Tuna and Billfish Assessment Programme (TBAP), the predecessor to the OFP. Its role was to be purely advisory and consultative, to assist in the conduct of pelagic fisheries research through the provision of expertise, information and technical advice. In 1997 the terms of reference and participation guidelines of the SCTB changed to promote a wider sense of ownership and enhanced scientific collaboration. The SCTB no longer advises SPCs Regional Technical Meeting on Fisheries.
ISC	Interim Scientific Committee. A scientific forum to exchange views on a full range of

[4] The Statistics Working Group (SWG) of the Standing Committee on Tuna and Billfish (SCTB) has the objective of coordinating the collection, compilation and dissemination of tuna fishery data for the WCPO. At its inaugural meeting in June 1998, the SWG agreed to (a) coordinate data collection by reviewing data collection forms currently in use in the region; (b) coordinate data compilation by reviewing the compilation of annual catch statistics, catch and effort data, and length data, on an annual basis; and (c) coordinate data dissemination by reviewing the instances of the dissemination of data on an annual basis. A paper was prepared by the Coordinator of the SWG (Lawson 2002) in order to report on progress with the coordination of the collection, compilation and dissemination of data. We have made no attempt to specifically summarise the content of that paper, but recommend that it be considered as an important information source for the PrepCon in considering the issues of data standards discussed in this paper.

Organisation	Description
	biological and other scientific issues relating to tunas and tuna-like species in the North Pacific Ocean, including status of stocks, data collection, research, and the consideration of future work programmes.
OFP (SPC)	Oceanic Fisheries Programme. A unit of the Secretariat of the Pacific Community, with a mission to provide member countries with the scientific information and advice necessary to rationally manage fisheries exploiting the region's resources of tuna, billfish and related species.
FFA	South Pacific Forum Fisheries Agency. Collects, analyses, evaluates and disseminates information to member countries. The Agency also provides legal, economic and technical advice, information and assistance in the formulation and implementation of the fisheries policies and access agreements.
IATTC	Inter-American Tropical Tuna Commission. An intergovernmental organisation with full scientific secretariat that studies the biology of the tunas and related species of the eastern Pacific Ocean to estimate the effects that fishing and natural factors have on their abundance, recommends appropriate conservation measures to maintain the stocks of fish at levels which will afford maximum sustainable catches, and collects information on compliance with Commission resolutions.
CCSBT	Convention for the Conservation of Southern Bluefin Tuna. An intergovernmental organisation established to ensure, through appropriate management, the conservation and optimum utilisation of southern bluefin tuna.
ICCAT	International Commission for the Conservation of Atlantic Tuna. An intergovernmental organisation established to recommend on the basis of scientific evidence, management measures and resolutions aimed carrying out its objective of maintaining the populations of tuna and tuna-like fishes at levels that will permit maximum sustainable catch.
IOTC	Indian Ocean Tuna Commission. An intergovernmental organisation established under Article XIV of the FAO constitution. It is mandated to manage tuna and tuna-like species in the Indian Ocean and adjacent seas.
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources. An intergovernmental organisation with a mission for the conservation of Antarctic marine living resources with conservation defined to include rational use.

3.1.2.1 Catch and effort data

Within the general region of the WCPO, the SPC-OFP, CCSBT, ISC and IATTC are regional fisheries bodies that maintain commercial fisheries data for tuna fisheries. In all cases, member nations provide catch and landings data to the regional organisation. While the SPC-OFP and IATTC have long-established fisheries database capabilities, the CCSBT and ISC are in the process of developing a comprehensive database and data management system. Of these groups, only IATTC has staff members in the field to collect supplemental catch data. All four organisations collect or receive logbook data but the data do not include all fisheries from some nations or gear types. For example, the SPC-OFP collects logbook data on standard forms from both domestic and foreign fisheries. The logsheet data held by OFP for 1999 cover 47% of the catch of tuna in the WCPO. Excluding the domestic fisheries of Indonesia and the Philippines, which account for 33% of the catch of tuna in the WCPO, logsheet coverage is 68% (Lawson et al., 2002)

In the case of the international organisations reviewed, ICCAT, IOTC and CCAMLR, all three organisations receive catch and effort data from flag states according to standardised reporting formats. In the case of IOTC and CCAMLR, contracting parties are obliged to submit data in a standard format using standard codes in either paper or electronic format. A comprehensive *Fishery Data Submission Manual*, produced in English, French, Russian and Spanish, provides guidelines for data submission including: deadlines for submission, data forms and guidelines for their completion, and standard definitions and codes.

Several WCPO organisations provide co-ordination and review of data-oriented activities. The SCTB co-ordinates data collection, compilation and dissemination according to agreed principles and procedures. While membership in SCTB is open to all interested parties, not all nations fishing in the WCPO are able to participate (for example, in past years, financial difficulties have curtailed participation by Indonesia and the Philippines). The ISC has a primary task to regularly assess and analyse fishery and other relevant information concerning tuna and tuna-like species. Its membership consists of distant water fishing nations.

3.1.2.2 VMS in the region

The potential crosscutting benefits of VMS data for the purposes of fishery data verification should not be overlooked. VMS data can be used both as a means of verifying reported effort data and as a means of monitoring the completeness of data submissions. It is in this context that existing VMS capacity within the WCPO region is discussed.

The FFA has taken a leading role in the development and application of Vessel Monitoring Systems (VMS in the WCPO region. The FFA has convened a series of technical consultations for member states and DWFNs to review and discuss VMS (e.g. FFA 1996). Several nations (including: New Zealand, the People's Republic of China, Papua New Guinea, the USA, Korea, French Polynesia, New Caledonia, Australia, and Japan) have implemented or are evaluating VMS technology.

Under the existing programme any DWF fishing vessel that wishes to apply for a licence to fish in the waters of an FFA Member Country, must first be registered on the VMS Register of Foreign Fishing Vessels maintained by FFA. The VMS Register is distinct from the regional register, also maintained by the FFA. Information required includes basic vessel details (name, call sign, type, operator/charter) and specific information relevant to the transceiver (Automatic Location Communicator, ALC) installed on the vessel (including communication information, certification and installation details).

The FFA system is based on the Inmarsat-C service, which offers comprehensive coverage of the entire WCPO region. In addition, Inmarsat-C offers two-way communications and messaging capabilities, which ensures flexibility with regards potential extensions to VMS (e.g. electronic logbook reporting). A type approval process has been implemented to ensure compatibility of hardware.

FFA maintains VMS information centrally and distributes data to member countries when fishing activity occurs within their respective EEZ. Actual data collected includes: vessel identity, position (latitude and longitude) and a time stamp; course and speed are determined on the basis of this information. The frequency at which data are transmitted is standardised at 6 transmissions per day, although the frequency can be increased and decreased if and when it is deemed necessary.
No VMS transmission is currently required in high seas waters.

With regards to VMS associated with RFMOs the issue of compatibility is of increasing concern.

3.1.2.3 Biological and ecological data

Observer programmes offer an opportunity to obtain scientific data directly from fishing operations. Observer programmes provide important scientific information on target catch, non-target catch (including incidental catch of seabirds, marine mammals and turtles), and the mortality of discards. In the WCPO, both FFA and IATTC operate regional observer programmes. The OFP supports and co-ordinates national observer programmes, and employed full-time observers in the past for deployment in priority fisheries (3 full time staff provide technical support both for observer programmes and port sampling programmes to SPC member States). In addition OFP provides limited financial assistance in support of member State observer programmes. The FFA programme operates under treaty on the US purse seine fleet, achieving about 20% coverage of the vessel days. There is no coverage of the longline or pole and

line fleets. IATTC operates a regional observer programme and co-ordinates with member nations to obtain 100% coverage of vessels larger than 363-mt capacity. The CCSBT has begun planning for observer coverage.

It is important to note that the design of observer sampling programs is far from simple. The statistical qualities of the required parameters are often very poorly defined, and rarely lend themselves to that body of statistical theory that deals with normal distributions. Sampling is typically a three-stage process, with three levels that need to be considered – the vessel (i.e. how many vessels to sample), the haul (how many hauls to sample on a vessel) and within-haul (how many samples to take from any sampled haul). Solutions that have been adopted in other international forums may help to provide guidance, but observer programmes will have to be tailored specifically to the species in question and the particular operating characteristics of the various fleets. Furthermore, the ideal statistical sampling method will only rarely be practical to implement within budgetary and logistical constraints. Therefore we would caution at this stage against any decision being made about the correct level of coverage in terms of vessels to be covered, % of fishing days to be covered, etc.

Effects of fishing on non-target, associated and dependent species (NADs), typically known as bycatch, has assumed increasing importance in international forums. Analysis of fishing impacts on bycatch of finfish, porpoise (dolphins), sea turtles, and sea birds requires objective and scientifically collected data such as obtained by observers. Increasing fishing for tuna near Fish Attracting Devices (FADs) has increased the incidence of bycatch of many species, including some that are threatened or endangered. The “Agreement for the Conservation of Albatrosses and Petrels of the Southern Hemisphere” provides an example of the international attention given to means of reducing impacts of bycatch.

The following summary information is available on observer programmes on vessels fishing for HMS in the Pacific

Organisation	Function
FFA	Develops and co-ordinates regional observer programmes and assists in the development of national observer programmes. Data collected combines operational information including vessel and gear attributes, biological data collected according to defined sampling protocols and environmental data. Compliance information is also collected, although there are no defined formats for compliance data collection.
OFP	Obtains species composition of target species, catch data for non-target species, and length data from national programmes; OFP observer programme co-ordinates with member nations to expand coverage; provides training and processes observer data.
IATTC	IATTC regional programme co-ordinates with national programmes for 100% coverage of vessels with > 363-mt capacity. Detailed observer manual and log sheets ensure standard protocols and collection procedures are followed.

Port sampling programmes offer a means of identifying both species composition and size (length/weight) frequency of landed catches. The IATTC operates an extensive port sampling programme through its field offices; employing standard sampling formats supported by detailed instruction manuals. OFP supports member country territory port sampling initiatives and encourages the use of standard sampling protocols and reporting formats. The ISC Statistics Working Group has recently addressed the issue of size data collection by member countries, encouraging the use of standard protocols; species-specific measurement standards are currently being defined by the ISC’s Species Working Groups.

Outside the region size data collection is mandatory for IOTC contracting parties, whilst although biological data are not collected through port sampling programmes, length frequency data are reported to CCAMLR based on crew samples in the absence of International Scientific Observers.

No regional fishery bodies in the WCPO area conduct operations to obtain fishery-independent data. Some member nations conduct surveys to collect fishery-independent data, which are generally for local use.

Environmental data collection is in the most part restricted to data collected at sea through observer programmes. A range of public domain environmental data are however used, for example the SPC-OFP has access to public domain data which it uses for assessment purposes and shares with member countries / territories.

3.1.2.4 Social and economic data

The Convention is very clear regarding the incorporation of sociological and economic criteria into the design of management measures. This stems primarily from the need to take into account the special requirements of developing States in the Convention Area, particularly small island developing States (Article 5(b)), both in terms of the allocation of allowable levels of catch and effort (Article 10(3)), and inclusion in the scientific process (Article 30(3)).

In terms of data collection activities in support of these socio-economic objectives, however, the Convention mentions only the collection and evaluation of economic and other fisheries-related data and information relevant to the work of the Commission (Article 10(1j)). To give effect to these objectives, the Commission will need to consider what specific information will be needed to support the application of the type of criteria listed in Article 10(3).

The decisions made on the basis of fishery and biological data, stock assessment results, and management policies have direct economic and social ramifications for fishers. Yet the difficulties in obtaining data to assess these effects generally cause economic and social analyses to lag far behind other aspects of fishery science. In the WCPO region, FFA and OFP have made significant strides in obtaining and using social and economic data. The issue of the optimal level of fishing is receiving increasing attention. The OFP has begun a project to integrate the available economic information for the fisheries and markets with the population biology of major tuna species in the western Pacific to provide advice to FFA member countries on optimal (from a bioeconomic point of view) levels of fishing effort.

Research activity	Organisation	Summary of activities
Incorporation of economic information into management scenario modelling	OFP	Integrates the available information on the population biology of major tuna species in the western Pacific with economic information on the fisheries and markets; develops bioeconomic model to assess economic rent and economic benefits to FFA countries
	FFA	Collects and disseminates economic and marketing information to the government and private sector in member countries

The CWP noted the trend for socio-economic data to be increasingly requested for use in fisheries management and has recognised the need for the improved availability of such data. The CWP recognises the need for collaboration between fishery statisticians, economists and managers in determining the data required and the concepts and definitions to be applied to these data (Appendix 6 CWP-18).

Table 3.2 Summary of data types handled by the selected international and regional programmes

	Commercial fishery data	Biological and ecological data	Environmental data	Socio-economic data	Comments
SPC-OFP	✓	✓	✓	✓	Collate flag state reports including aggregated and fine scale catch and effort data. Catch and effort log sheets provided to SPC by member countries and territories, mostly within the EEZ. About 89% coverage from logbook data in SPC area. Some high seas data provided voluntarily. Missing data from some fishing nations. Aggregated (summary logbook) data submitted by DWFNs according to agreed spatial and temporal resolution by gear type. Supplemental data obtained through industry and observer reports if no logbooks provided. Use of standard regional data collection formats encouraged for catch and effort data (log sheets), port sampling data and observer data. Primary source of biological and ecological data are observer reports supplemented by national port sampling initiatives. Bio-economic models formulated on the basis of socio–economic data collected by FFA.
IATTC	✓	✓	✓		Transcribe logbook data and collate flag state reports. Collect and collate port sampling, transhipment, unloading and observer data according to standard formats. Extensive monitoring and analysis of dolphin and other species, recent emphasis on sharks; observer data.
CCSBT	✓			✓	Developing a database for fishery statistics and trade statistics. Ongoing discussions in relation to obtaining consensus from members concerning minimum data standards and the subsequent confidentiality of those data.
CCAMLR	✓	✓	✓		Collate flag state reported catch and effort data at various levels of spatial and temporal aggregation: 'real-time' catch and effort reports, for each 5-day, 10-day or monthly interval during fishing seasons; fine-scale catch, effort and biological data (operational data encouraged); and annual and monthly summaries of catch and effort (STATLANT) data. Collect biological data through scientific observer data and reports. Implement catch documentation scheme. Ecosystem information collected under CEMP.
ISC	✓	✓			A standardised format for data submissions has been agreed by the ISC Statistics Working Group – catch and effort data reported annually including total catch and effort (nationally) and summarised logbook data (nationally) for all fleet segments according to agreed spatial and temporal resolutions. Verification of catch and effort data at source using landings data; observer data; and trade statistics. Length data submissions based on data originating from national sampling programmes – standardised format for sampling and reporting encouraged. Provides for exchange on views on scientific issues for tuna and tuna-like species in the North Pacific.
ICCAT	✓	✓	✓		Catch and effort data submissions according to agreed spatial and temporal resolution by nation, vessel and gear type. ICCAT had been carrying out environmental-related activities including work on associated and independent species and by-catch.
FFA	✓			✓	Position information; regional VMS programme. Regional observer programme Collect socio-economic particularly in relation to licensing and access arrangements for negotiation purposes.
IOTC	✓	✓			Catch and effort data submissions by contracting parties obligatory and non-contracting parties encouraged according to standard spatial and temporal resolutions according to vessel and gear type by

	Commercial fishery data	Biological and ecological data	Environmental data	Socio-economic data	Comments
					nationality. Collection of data on bycatch (NADs) limited as no logbook requirement for bycatch reporting. Formal collection of biological data limited to size data reporting (length / weight data reported monthly by 5x5). Mechanisms for obtaining size data include port-based sampling. Effort data supported through annual submission of vessel and gear characteristics. Trade statistics collected for selected species. Regional tagging programme feasibility study underway.
SCTB	✓	✓	✓		Collate data, based on reports generated by SPC-OFP. Supports initiative for regional data collection standards through SCTB Statistics Working Group.

3.2 Data handling capabilities

Decision making for fisheries policy-making, planning and management relies largely on processed information, not raw data. The MHLC consultation report makes clear reference to the need for agreement on "*how to consolidate logbook and other data for all fleets in a confidential database.*" Further reference is made to the need for a "*data repository system for length-frequency and associated data*." These requirements coupled with responsibilities outlined in Annex I of the UNFSA point to the requirement for regional Database Management System capacity.

Database management systems offer a means of storing data securely, whilst permitting ready access to data for analysis purposes. A fundamental principle is that data should be held in the form in which they were submitted. This allows flexibility in the way data can be processed (e.g. filtered, aggregated, transformed), and ensures all calculations are reproduced from source data incorporating all revisions.

The primary functions of database management systems are:

- To ensure data conform to standard classifications
- To ensure validity of the data;
- To ensure data integrity and internal consistency;
- To secure and maintain primary data;
- To allow easy access to primary data;
- To process the data efficiently as required;
- To allow different data sets to be integrated, thereby increasing their overall utility.

These key functions facilitate data consolidation, integration, verification, analysis, and where necessary provide a mechanism for generating reports and information for dissemination.

In considering the issue of system design and capability, the role played by database developers should be addressed carefully; there are considerable advantages in the development of database management systems in parallel with any planned data collection system, not least with regard to enhanced opportunity for data standardisation and increased potential for data integration.

3.2.1 Database management system architecture

Available information technology is diverse and evolving rapidly; as a consequence it is important to seek the most up-to-date advice before selecting a system. When considering the approach to take for developing a new database management system, the following options are available:

- Taking commercially available software and adapting it to new requirements;
- Piecing together a system with different software components;
- Creating a custom system from scratch.

The advantages and disadvantages vary for each approach and should be weighed carefully before committing resources. The table below summarises some of the strengths and weaknesses of the three approaches.

DBMS design	Strength	Weakness
Adaptation of commercial software	Useful for prototyping purposes: • assists identification of data flows and system components; and, • assists integration process between data collection process and data storage design.	Can have long-term limitations particularly with regard to data collected under large-scale sampling programmes – eventual migration necessary to larger more robust system
Adaptation of existing components	Quick to instigate Comparatively low start-up costs	Significant modification of an existing system may lead to potential conflicts. As a result there may be high maintenance costs associated.
Custom designed systems	Flexible - can be configured to match data collection / sampling methodology closely. Database development itself can contribute to (act as a tool) data collection programme development, where standardisation can be of mutual benefit through standardisation of data collection and data storage	Essential presence and continuing support required of system developers, which can be costly.

In addition to data specific requirements a number of issues will influence the sustainability of system design, including hardware and software and the capacity of personnel to manage the system. In the short term there may be room for exploiting an existing system or combination of systems, although a custom designed system is likely to offer a more viable and sustainable long-term solution.

3.2.2 Hardware

Hardware solutions employed by selected RFMOs are summarised in the table below. All institutions assessed employ client server style configurations. There are considerable advantages to using a client-server type configuration, as employed by the OFP, FFA, IATTC and CCSBT, including: greater potential for expansion, relatively straightforward backup needs and central control of data.

Organisation	Server & Client machines	Upgrade policy
CCSBT	Combined file and database server Compaq 1.25 Gb RAM RAID type HD Broadband internet connection	Informal upgrade policy, predominantly driven by operating system compatibility. The system is 2 years old – server lifespan expected to exceed 5 years and 4 years for client machines.
OFP	Separate Database, Web and Mail servers. Database server specifications include: HP3000 900 MHz; I Gb RAM; Data storage - 6 drives 2 x RAID0, 3 x RAID5, 1 Hot swap	No routine replacement cycle. Upgrades chiefly motivated by software compatibility.

Organisation	Server & Client machines	Upgrade policy
	Client machine minimum specifications include: Pentium 4; 1.7 Ghz processor; 512 Mb RAM; 80 Gb Hard drive. Backup facilities include a 60 Gb supporting tape drive, soon to be upgraded to 840 Gb. The current drive is capable of backing up all existing data.	
FFA	VMS and FFA have separate networks and servers HP 9000 servers 10 x 5Gb HD.	Hardware upgraded when perceived necessary to support programmes.
IATTC	Servers include: database; mail; file; and web. Minimum specification - Pentium processor 512 Mb RAM, Storage 9 Gb Network 10/100 Mb TX Ethernet Numerous client machines with minimum specification – Pentium 400MHz 256 Mb RAM, Storage 20Gb	Flexible hardware standard set to accommodate change. Bi-annual capacity and obsolescence evaluations.

The issue of redundancy is an important one when considering hardware. The capacity to replace individual components should they fail is essential. RAID-style hard disks offer this facility. In the event of complete hardware failure it is important that a contingency plan exists. Comprehensive support contracts are commonly offered when hardware is purchased and may offer an appropriate solution. The CCSBT server is supported by just such a service contract, which offers complete server replacement within two working days in the event of complete system failure.

3.2.2.1 Backup and redundancy

The OFP, FFA, IATTC all maintain regular schedules for database backup. A combination of differential and full server area backups is undertaken on a daily, weekly and monthly basis. Backups are maintained in secure fireproof locations, both on and off site. CCSBT undertakes full server area backups daily and monthly; password protected copies are maintained both on and offsite. No provision has been made for out of country backups: data confidentiality issues were cited as potential stumbling blocks preventing out of country backups by both the OFP and CCSBT. No information was available regarding the ISC's backup policies.

3.2.3 Software

Software choice is integral to the operation of the database, and is reviewed below for WCPO organisations.

3.2.3.1 Operating systems and database software

	Database	Analysis software Embedded controls and processes
CCSBT	**MS SQL Server** For simplicity and flexibility, some links (particularly to the "CODES" table) are maintained through triggers and stored procedures rather than via referential integrity constraints. Date and time stamps used to manage data.	Standard routines including: referential checks, reports and, standard loading routines based on custom queries written in visual basic –using custom query building software (*Quick Query*). No other analysis software bar standard MS products.

	Database	Analysis software Embedded controls and processes
	Do not use public metadata standards although description fields are included for internal database administration purposes.	Any transformation and adjustment to data undertaken in a development version of the database in the first instance.
OFP	**Visual Fox Pro (VFP)** Relational database including administrative databases and metadata: Data registry database; Global reference tables	Custom written VFP routines for: Verification Analysis Data retrieval
CCMALR	**MS SQL Server** In house custom design and development. All major data sets integrated where possible	Off the shelf (MS Office, S-Plus, FORTRAN) and purpose built routines
FFA	**Oracle v 7.3** UNIX operating system Data integrated where possible: Regional vessel register, observer database, people and organisations, vessel activity and catch (US Treaty), violations and prosecutions, Fisheries agreements and licensing.	Custom written query software, designed and maintained by contracted developers.
ISC	Desktop PC database Still under development	No information

3.2.3.2 User interface

	Client interface
CCSBT	Client machines use 3 x MS Windows 2000 Professional, 1 x XP, operating systems. Visual basic interface - Limited for the time being to module associated with data entry Comprehensive data entry interfaces for three modules: • the Tag Recapture module; • the Trade Information Scheme module; and, • the Reference File module. All other data loaded electronically and extracted via SQL queries for other modules.
OFP	Visual Fox Pro (VFP) front-end (MS ACCESS front-ends developed for SPC clients) Comprehensive custom designed data entry system; the system is under continual development, paperless solutions are under investigation including FTP logsheet transfer. Comprehensive post processing query and data retrieval system also written in VFP – 80-90% of queries are pre-written. A professional licence is held by OFP that permits 3rd party software and subset dissemination.
CCMALR	MS Access front end.
FFA	Database front-end – custom written ORACLE VMS front-end – custom programme (*MapTrac*) based on MapInfo
ISC	No information

3.2.3.3 Upgrade policies

	Upgrade policy
CCSBT	Informal upgrade policy Driving force behind upgrades is software compatibility with member States
OFP	No scheduled review Upgrades when necessary, driving force is compatibility. Extensive software testing prior to upgrades incl. patches upgrades
CCMALR	Annual review and upgrade cycle
FFA	Upgrade as and when available
ISC	No information

3.2.4 Personnel

Staffing requirements necessary to maintain a database management system depend greatly on the data types processed, the amount of data received, and the format in which they are made available.

Staffing needs may be high during the early stages of database management system development. Subsequent needs may level out although continued commitment to database management is essential. Essential personnel include a database administrator, a programmer and data entry staff. Outsourcing data entry may be an option, although experience has shown that outsourcing data entry can have negative implications on data quality and may also be regarded as a threat to data security and confidentiality.

OFP	8 permanent staff • 1 x Fisheries Statistician responsible for overall management of the section, liaison with users external to SPC, editing and publication of statistical bulletins, and conducting statistical analyses • 1 x Programmer / Research Officer responsible for maintaining data processing and query interface software, providing technical support for tuna fishery database systems in SPC member countries and territories, and compiling data summaries. • 1 x Research Officer / Analyst responsible for maintaining data processing and query interface software, providing technical support for tuna fishery database systems in SPC member countries and territories, and maintaining the SPC/OFP website. • 1 x Fisheries Database Supervisor is responsible for supervising the processing of data, maintaining data processing software, and compiling data summaries • 4 x Data Entry Technicians responsible for data entry and other secretarial duties, as required. In addition, technical support is provided to national and regional port sampling and observer programmes through the work of 3 further staff members not strictly linked to data handling, but who nevertheless influence the quality if data submissions. These include a port sampling supervisor, an observer supervisor, and a port sampling and observer trainer. IT system management is handled independently of the OFP by the SPC IT unit that handles operating systems and server backup.
FFA	4 permanent staff including a database developer – the bulk of design work and development has been outsourced. A combination of data entry clerks and FFA admin staff manage data processing needs.
ISC	No information – the system is to be managed by the Fishery Agency of Japan
IATTC	IATTC employs 7 permanent IT staff including: • 1 x System manager • 1 x Assistant system manager • 1 x Data administrator doubling as a • 1 x Data administrator • 2 x Programmers • 1 x Graphics/web designer Additional support is available from some 7 data editing and data entry personnel. IATTC are unsure if current staffing levels will be sufficient to support all projects.
CCSBT	Data submissions predominantly take electronic form, although on occasions there is a requirement for data entry (e.g. tagging returns, trade information). Data entry was formerly outsourced but the quality was deemed poor; all data entry is now undertaken by the database manager with assistance from the administrative office. • 1 x database manager responsible for editing and publication of statistical bulletins, supervising the processing of data, maintaining data processing software, compiling data summaries and maintaining the SPC/OFP website. • 1 x administrative officer who occasionally assists with data entry.

There is still some room for increasing the data management workload at OFP without increasing the number of current staff (Tim Lawson, OFP, pers. comm.). However, if, in the long term, there is a major increase in (a) logbook data, (b) port sampling data, (c) observer data and/or (d) implementation of a large-scale tagging programme, then increased staffing may be required. On the other hand, OFP currently has a need for an additional position to conduct statistical analyses related to data management,

including the evaluation of data quality, the estimation of annual catches, and the design of sampling programmes.

Staffing levels associated with data handling at IATTC appear adequate, although it is felt that these should be monitored closely to assess whether research needs can be met sustainably.

3.2.5 Summary

With regard to assessing data handling capacity of candidate organisations within the WCPO region, information insufficient for comment was made available regarding ISC staffing and database capacity. Conversely, available information indicates that OFP could manage data on behalf of the Commission in the short term without an immediate requirement for additional staff, other than a position to conduct statistical analyses related to data management (Tim Lawson, OFP, pers. comm.). If, in the long term, there is a major increase in data compiled on behalf of the Commission, then additional staffing may be required.

In terms of technical capacity (hardware and software associated with the OFP database management system) all indications point to a relatively sophisticated system on a par with systems used elsewhere for the management of regional fishery data. The OFP already compiles fishery data for the entire WCPO region, although data submissions are made on a voluntary basis and as a result are not comprehensive. Notwithstanding this, the types of data handled by OFP reflect the data types likely to be collected on behalf of the Commission.

3.3 Data security provision and policy

The importance of data security and confidentiality policies can not be overstated in the context of a RFMO, and stems from the recognition that data is a resource and as such has a value, whether economic or otherwise. Confidence in RFMO security and confidentiality policies underpins the willingness of member States to submit data.

Security policies address overarching needs relating to the confidentiality of data submitted to RFMOs and must reflect security considerations relevant to both hardcopy and electronic data. Security policies must mitigate against theft of data and hardware; data loss (hardware and software failure, data corruption); and contravention of confidentiality policies. Commonly applied security measures include:

- Restricted access to premises where data are held, whether in electronic or hard copy format.
- Hardware access limited to valid data users, server access limited to database administrators/engineers;
- Integral database system security including username and password protected access to processed and pre-processed data;
- Restricted levels of access to data reflecting user requirements;
- Encrypted and password protected means of data transmission, including FTP sites, CD-ROMs, disks etc.;

In addition, provision must be made for data recovery in the cases of data corruption or loss. Routine backup procedures are essential, including provision for offsite backup. Recently, consideration has also been placed on the importance of developing provisions for so called *doomsday scenarios*, where copies of data are maintained out of country to ensure recovery in the event of serious environmental disaster or political instability (see Section 3.2.2.1).

The table below summarises some of the security policies of fisheries organisations both in and outside the WCPO region.

Organisation	Data security provisions
OFP	The OFP makes specific provision to ensure security and confidentiality of all data submissions *Access to unauthorised users is restricted through:* • Firewall protection • Integral operating system based password and username requirement for access to data. • Automatic system lock with password protection is instigated after 5 minutes • Restricted access to data for authorised users – e.g. scientists only have access to data through the query system (read-only access) • Development system (db command line) access restricted to database developers. *External users:* • SPC Fire wall –logically secure from external attack. • Web access password protected; access restricted to Member nations and OFP personnel. Member nations only have access to their own data sets (one user per nation). • Virus checking software is regularly updated *Physical security:* • All hardcopy data are stored in locked file cabinets in a secure area of SPC. • Offices locked out of hours • Access to hardware (servers restricted to IT personnel (locked room)
ISC	No details available
CCSBT	The CCSBT has recently agreed policies relating to data security. *Electronic data security* • The Database Manager will control the level of access that is allocated to individuals. • Access to the Secretariat's computers will require logging on with a valid user-name and password. Passwords of users will be changed every 60 days. • The Secretariat's computers will have screen savers with password protection. Screen savers will have a "wait" time of less than 10 minutes. • Access to the Secretariat's database will require a valid username and password. Direct access to the database will not be available via the internet. • Any confidential data that is not held on the database (e.g. data files received by the Secretariat prior to being loaded onto the database) will either be stored in a password-protected file, or on an encrypted section of the hard disk that requires a password to be accessed. • Transmission of confidential data via electronic means (e.g. e-mail, disk, CD, FTP) will always use password protected files (e.g. password protected Excel and Zip files), or an e-mail encryption system. • Backups of CCSBT data (e.g. tapes, disks) will be password protected and/or be stored in an external secure environment. *Physical data security* • The Secretariat's office is locked when unattended and is monitored by an electronic security system when the building is closed (e.g. in the evenings). • Physical data (e.g. paper records) of a confidential nature will be kept within the Secretariat's office, or in the company of a Secretariat staff member. • Physical data that are deemed to be highly confidential will be stored in filing cabinets and cupboards that are locked when the office is unattended. • Physical copies of electronic data provided to the Secretariat (e.g. CD's) will be destroyed or returned to the supplier of the data.
IOTC	Procedures for safeguarding records and databases include: • Access to logbook-level information will be restricted to IOTC staff requiring these records for their official duties. Each staff member having access to these records will be required to sign an attestation recognising the restrictions on the use and disclosure of the information. • Logbook records will be kept locked, under the specific responsibility of the Data Manager. These sheets will only be released to authorised IOTC personnel for the purpose of data input, editing or verification. Copies of these records will be authorised only for legitimate purposes and will be subjected to the same restrictions on access and storage as the originals. • Databases will be encrypted to preclude access by unauthorised persons. Full access to the

Organisation	Data security provisions
	database will be restricted to the Data Manager and to senior IOTC staff requiring access to these data for official purposes, under the authority of the Secretary. Staff entrusted with data input, editing and verification will be provided with access to those functions and data sets required for their work.

3.3.1 Physical security

Physical security of data applied by organisations within the region appears comprehensive when compared to policies applied outside the region. The OFP maintains a strict data security policy; servers are maintained in a secure room to which only appointed personnel have access; and user access is restricted to authorised OFP personnel whilst hardcopy data are stored in locked filing cabinets. FFA and CCSBT maintain similar restrictions on physical access.

No information was available regarding the physical data security policies of the ISC.

3.3.2 Electronic data security

Access to electronic data should be controlled to ensure database integrity and confidentiality, but interfere as little as possible with legitimate access. OFP, IATTC, FFA, and CCSBT all demonstrate similar systems ensuring that data are logically secure. These centre upon access restrictions for nominated personnel based on a username and password system that tailors user access based on operational requirements. In this way, development system (database command line) access is restricted to database administrators ensuring database integrity. Access to other OFP users is restricted through a (read-only) query system. All organisations use software-based firewall protection against access by unauthorised external users and an additional layer of security exists, at the user level, through an automated system lock with password protection in the case of temporary absence of valid users.

No information was available on electronic data security associated with the ISC database.

3.4 Data confidentiality and data dissemination

Given the clear requirement for data dissemination, criteria and protocols for data confidentiality will need to be established, which define the framework within which data may be disseminated. These criteria and protocols generally constitute rules-based data confidentiality policies. Where agreement has been reached, confidentiality policies describe the type and resolution of public domain data and actions necessary to gain access to non-public domain data. A number of common conditions surrounding issues of data confidentiality exist.

It is usual, when faced with a data request, for an organisation to be obliged to either seek the data owner/originator's permission or to at least inform them that the data have been supplied, to whom and for what reason.

Most organisations protect the identity of individual vessels, even in requests from Member scientists. The point is usually made that the name of the vessel is not important, that a code is sufficient. Although data may be supplied for scientific work, there are usually strict rules on the application of the data outside of the particular analysis for which it was intended.

Many organisations apply rules that preclude the supply of aggregated data if that aggregation contains fewer than 3 vessels. This is because if one knows which vessels have participated in a fishery, and there are only one or two of them, it is fairly easy to determine where a competitor has been fishing.

Rules-based confidentiality policies are usually defined in an effort to establish procedures for the release of data and generally specify data type and resolution. In certain cases (e.g. CCSBT) the issue of confidentiality is treated on a case-by-case basis. Protocols are defined outlining procedures to be

followed if access to data is requested. Similar procedures are outlined in rules-based confidentiality policies where ad hoc data access is requested, both from Members and non-Members.

The table below includes information relating to data confidentiality policies of organisations both within the WCPO region and outside.

Organisation	Data confidentiality
OFP	The OFP policy on the dissemination of data is identical to the policy that was established by the Standing Committee on Tuna and Billfish at its eleventh meeting in July 1998 (Anon., 1998). Annual catch estimates, by gear type, flag state and year, are considered to be in the public domain. Policies relating to catch and effort agreed at the eleventh meeting of the Standing Committee on Tuna and Billfish (SCTB11). • Catch and effort data grouped by 5° longitude by 5° latitude by month for longline and 1° longitude by 1° latitude by month for surface fisheries, for all fishing nations combined, are considered to be in the public domain. • Catch and effort data grouped by 5° longitude by 5° latitude by month for longline and 1° longitude by 1° latitude by month for surface fisheries, stratified by fishing nation, are available for release at the discretion of the Co-ordinator of the SCTB Statistics Working Group (SWG), for those sources of data which have so authorised the SWG Chairman. For those sources of data that have not authorised the SWG Chairman to release data at his discretion, authorisation for the release of data must be obtained from the sources of the data. • Catch and effort data grouped at a finer level of time-area stratification may be released with authorisation from the sources of the data. • Catch and effort data are released for research purposes only, and to individuals who can be trusted to use the data responsibly. The person requesting the data is required to provide a description of the research project. The data are released only for use in the specified research project and the data must be destroyed upon completion of the research project. However, catch and effort data may be released for general usage, such that the data need not be destroyed, with authorisation from the sources of the data. • The person requesting the data will be asked to provide a report of the results of the research project to the SWG Chairman for subsequent forwarding to the sources of the data. All SPC member countries and territories, except New Zealand, have authorised the OFP Fisheries Statistician to release data at its discretion. Of the non-SPC sources of data held by the OFP, the Forum Fisheries Agency, Japan and Korea require authorisation before their data can be released. Policies relating to length data are the same as those detailed for catch and effort data Observer data - observer reports released to the agency that arranged the placement of the observer (when the agency does not already have a copy of the report) or to the captain and owner of the vessel (if a request is received by the OFP). Otherwise, only summary information for research purposes is released by the OFP.
IATTC	Confidentiality is provided by laws against search and seizure of IATTC records. Detailed data (e.g. logbook or company records) are only released with written permission of the individuals providing the data to the IATTC. Access is provided to summary data, which does not reveal the identify of operations of individual companies or vessels. Catch & effort data summaries on 5x5-quarter resolution are available on request. Coastal state agencies may be provided 1x1- month catch & effort summaries for their EEZs on request. Other formats may be provided on an ad hoc basis by request to and approval of the Director of Investigations: requests for scientific purposes and research collaboration are seldom disapproved. Release of selected data from the observer program is provided for by signature agreement of vessel skippers and owners. This data is available to flagging nations, and to the International Review Panel (IRP) without vessel identification, for purposes of investigating compliance with marine mammal protection.

Organisation	Data confidentiality
	IATTC catch and effort data aggregated by 5° by 5° are made available, if catches by individual vessels cannot be identified in the aggregated data. Data aggregated by 1° by 1° may be released if justified by reasonable use. Raw logbook data may only be released with authorisation from the skipper and the owner. Observer data are confidential, although under certain conditions observer data are provided to the government of the fishing nation in which the vessel is registered. Other research data collected by individual scientists are exchanged with scientists outside IATTC on an ad hoc basis.

IOTC[5]	The IOTC has a defined policy for releasing catch-and-effort and length-frequency data:
	
	• Catch-and-effort and length-frequency data grouped by 5° longitude by 5° latitude by month for longline and 1° longitude by 1° latitude by month for surface fisheries stratified by fishing nation are considered to be in the public domain, provided that the catch of no individual vessel can be identified within a time/area stratum. In cases when an individual vessel can be identified, the data will be aggregated by time, area or flag to preclude such identification, and will then be in the public domain.
	• Catch-and-effort and length-frequency data grouped at a finer level of time-area stratification will only be released with written authorisation from the sources of the data. Each data release will require the specific permission of the Secretary based on the following criteria:
	  o A Working Party will specify the reasons for which the data are required.
	  o Individuals requesting the data are required to provide a description of the research project, including the objectives, methodology and intentions for publication. Prior to publication, the manuscript should be cleared by the Secretary. The data are released only for use in the specified research project and the data must be destroyed upon completion of the project. However, with authorisation from the sources of the data, catch-and-effort and length-frequency data may be released for long-term usage for research purposes, and in such cases the data need not be destroyed.
	  o The identity of individual vessels will be hidden in fine-level data unless the individual requesting this information can justify its necessity.
	  o Both Working Parties and individuals requesting data shall provide a report of the results of the research project to IOTC for subsequent forwarding to the sources of the data.
	
	Data submitted to working parties
	• Data submitted to Working Parties will be retained by the Secretariat or made available for other analyses only with the permission of the source.
	The above rules of confidentiality will apply to all members of Working Parties.

CCAMLR	CCAMLR has a series of rules for access to data. 1. For the preparation of scientific papers for CCAMLR, all scientific data are available but only on request from nominated scientific committee representatives, for specified reasons. All data originators/owners are informed that the data have been supplied. 2. If scientists wish to publish analyses that include CCAMLR data, they must obtain permission of the data owner/originators. 3. For data pertaining to compliance and enforcement, data access is limited to nominated Member officers. These are highly sensitive data, often including commercial information. Therefore, the data are filtered on a need-to-know basis, so that for instance the owners can see all the data whereas importing states can only see quantities (not destination companies, and not origins) of fish. 4. Although haul-by-haul data may be released to CCAMLR Members requesting them, the identity of observers and vessels is protected by the adoption of codes. CCAMLR has recently become concerned about the commercial confidentiality of data available to participants at working groups. This concern has come about because some delegations to scientific working groups bring with them representatives of commercial organisations. The solution has been to apply the same rules as above at working groups. Thus data are only supplied to specific requestors (not made generally available to all participants) for specific work (for instance, in the WCPO context someone conducting an assessment of bigeye would only be given bigeye data, not yellowfin data).

[5] The IOTC policy on data dissemination was modelled on the OFP policy (David Ardill, IOTC, personal comment)

Organisation	Data confidentiality
	The following Rules for Access and Use of CCAMLR Data were adopted by the Eleventh Meeting of the Commission (CCAMLR-XI, paragraph 4.35*): These rules replace those adopted at the Eighth Meeting of the Commission (CCAMLR-VIII, paragraph 64) (a) All data submitted to the CCAMLR Data Centre should be freely available to Members for analysis and preparation of papers for use within the Commission, the Scientific Committee and their subsidiary bodies. (b) The originators/owners of the data should retain control over any use of their unpublished data outside of CCAMLR. (c) Requests to the Secretariat by individual scientists of a Member for access to data in the CCAMLR Data Centre will only be considered if the request has been approved in writing by the Representative to the Scientific Committee (or his nominated deputy) of that Member. The Representative is responsible for informing the individual scientist requesting the data, of the rules governing access to CCAMLR data and for obtaining the requester's agreement to comply with these rules. (d) When Members request access to data for the purpose of undertaking analyses or preparing papers to be considered by future meetings of CCAMLR bodies, they should indicate the reason for the request and the nature of envisaged data analysis. The Secretariat should supply the data and inform the originators/owners of the data of this action, together with the details of the original request. When data are requested for purposes other than consideration by future meetings of CCAMLR bodies, the Secretariat will, in response to a detailed request, supply the data only after permission has been given by the originators/owners of the data. (e) Data contained in papers prepared for meetings of the Commission, the Scientific Committee, and their subsidiary bodies should not be cited or used in the preparation of papers to be published outside of CCAMLR without the permission of the originators/owners of the data. Furthermore, because inclusion of papers in the *Selected Scientific Papers* series or any other of the Commission's or Scientific Committee's publications, constitutes formal publication, written permission to publish papers prepared for meetings of the Commission, Scientific Committee and Working Groups should be obtained from the originators/owners of the data and authors of papers. (f) The following statements should be placed on the cover page of all unpublished working papers and background documents tabled: This paper is presented for consideration by CCAMLR and may contain unpublished data, analyses, and/or conclusions subject to change. Data contained in this paper should not be cited or used for purposes other than the work of the CCAMLR Commission, Scientific Committee, or their subsidiary bodies without the permission of the originators/owners of the data.
ISC	Public domain: Total catch and effort aggregated over entire North Pacific with caveat that some discards in N Pacific not reported. Confidential: Raw data, both commercial and biological contains proprietary information and is therefore considered confidential. Access restricted to contributors and authorised scientists of ISC WGs. Any requests from non-contributing parties, all ISC members and observers will be informed of details of the request and permission solicited from contributors. If species specific data are requested the appropriate WG head will take lead in seeking approval. Access to non-public domain data by contributors for purposes other than stock assessment treated as above. Access rules cannot be changed without agreement of all contributors
CCSBT	Data provided for the CCSBT database will be treated confidentially and will not be released by the Secretariat except where members of the Extended Commission approve the specific data release on a case-by-case basis. Consensus at SAG/ESC meetings and subsequent approval by the Extended Commission is sufficient approval for release of specific data to members of the Extended Commission for the purpose of routine data exchange for the stock assessment and management procedure. This approval will apply until the Extended Commission revises the data confidentiality policy. Release of other data requires case-by-case approval from an exchange of correspondence (including e-

Organisation	Data confidentiality
	mails) between Extended Commission member's nominated contacts. When providing approval to release specific data, members of the Extended Commission can specify that the particular data does not require their re-approval for future releases by the Secretariat. In these situations, members of the Extended Commission must also specify the groups of people (e.g. public, Extended Commission members) to whom the Secretariat may release the data without requiring case-by-case re-approval. The Secretariat will maintain a list of data sets (and associated groups of people) that are approved for release without requiring case-by-case re-approval. The list will be provided to members of the Extended Commission and members of the Extended Commission have the right to revise the approvals that they have given.

3.5 Summary

In considering the required capabilities of organizations within the WCPO region to meet the Commission's interim data management needs, three possible candidate organizations are identified as currently handling equivalent data to that likely be required by the Commission: SPC-OFP, FFA, and ISC, as summarized in Table 3.2. A commercial consulting company could undertake interim data needs for the Commission. However, the development time and equipment necessary make such consultants less time- and cost-effective than the candidate organizations considered.

Priority data requirements of the Commission in the short- to mid-term are likely to comprise fishery and biological data, including: annual catch estimates; catch and effort data, and biological information, specifically length frequency data. Data sources are likely to include flag state reported catch estimates, catch and effort data submitted by flag states and coastal states, and observer data and port sampling data.

Given these interim priorities, FFA's limited management of catch and effort and biological data limits its comparative strengths as a candidate for the provision of interim data management services to the Commission. FFA handles both technical and economic data which although likely to be important aspects of the long-term data needs of the Commission are unlikely to be regarded as a priority, in the context of scientific data needs in the short to mid-term. Nevertheless, FFA capacity and expertise in relation to a future regional vessel register and regional VMS should not be overlooked, particularly in the context of the Commissions MCS needs. Crosscutting benefits associated with the implementation of a comprehensive regional vessel register and regional VMS will undoubtedly influence the Commissions' capacity to monitor stock status and fishing effort more effectively in the long-term.

Both ISC and OFP manage data equivalent to those likely to be of priority to the Commission. The ISC compiles both fishery (annual catch and catch and effort data) and length frequency data for the North Pacific, with the exception of longline and purse seine data that are compiled for the entire Pacific[6]. The OFP compiles data for the entire WCPO region, including fine-scale (operational) data, submitted by coastal states for domestic and DWF fleets operating in their respective territorial waters.

OFP and ISC both compile length frequency data; mechanisms for the integration of OFP length frequency data into the ISC database have been established. In addition to length frequency data, obtained through submissions from national port sampling programmes, the OFP also compiles data collected by national and regional observer programmes, which includes both operational (vessel and gear attributes and detailed catch and effort data) and biological data.

With regard to data handling capacity, limited information was available describing ISC technical capacity. Although details describing data collection and reporting standards and proposed data fields to be applied

[6] Amendments are planned relating to future fishery data submissions on the basis of sub-areas; appropriate spatial resolutions are to be proposed by the ISC Species Working Groups based on stock areas of major tuna species and billfish (ISC, 2002).

in a data management system were made available, no specific information relating to associated technical capacity (hardware, software, human resources) was available, preventing further assessment of capacity.

A significant body of information was available describing OFP technical capacity. The hardware used by the OFP is equivalent to that employed by other RFMOs handling similar volumes of data. OFP has particular strengths in the use of distinct file, mail and web servers, a forthcoming upgrade in data backup capacity, and the implementation of a minimum standards policy for client machines.

The use by OFP of a client server style configuration is reflected in all other data management systems reviewed, and indicates the significant benefits of such a configuration, including: increased capacity for expansion; central control of data (increasing security and database integrity) and relatively straightforward provision for system backup.

The operating system employed by OFP offers integral security features and associated benefits to data confidentiality. The database software used is MS Visual Fox Pro (VFP), regarded as a powerful database engine. Notwithstanding this, the conceptual design of the database could be relatively easily transferred to another system in response to the establishment of a recognized international benchmark.

At the client end all graphical interfaces are custom written in VFP, complimented by a suite of comprehensive, post processing, error checking routines. Double entry of data is undertaken ensuring the quality of hard-copy data processing. An estimated 80-90% of queries have been pre-written which account for all standard data requests and reporting needs. The query and data retrieval system is maintained in isolation (read-only) from the actual database, ensuring database integrity.

The data management system itself is integrated as far as possible and includes a global reference table and data registry database permitting real-time monitoring and evaluation of data submissions and data processing.

A professional license is held by OFP for VFP that permits third party dissemination of software and data sub-sets, facilitating data dissemination. All published datasets are accompanied by metadata, increasing data utility and ensuring compatibility.

If the OFP were to take on the role of interim data management on behalf of the Commission, significant modifications to hardware and software are unlikely. Computer memory is now relatively cheap, and therefore could easily be added to existing hardware, although in the short- to mid-term this is unlikely to be necessary. Similarly, the database software employed by OFP is adequate for the task of interim data management and could be transferred to a different system with relative ease if international standards call for this in the future. Were this to be the case, significant effort would be required for re-writing data quality control and data interrogation queries. The planned up-grade of back-up hardware is more than capable of handling likely increases in data volume.

The implementation of interim Commission data management needs is unlikely to significantly increase OFP staff workload, given that the majority of data are already handled by the OFP. In terms of technical personnel there is still some room for increasing the data management workload at OFP without increasing the number of current staff (Tim Lawson, OFP, pers. comm.). Data types to be handled are unlikely to differ significantly especially the majority of data standards recommended for the interim mirror those already applied by the OFP.

However, if a major increase in (a) logbook data, (b) port sampling data, (c) observer data and/or (d) implementation of a large-scale tagging programme occurred in the long term, then increased staffing may be required. OFP currently has a need for an additional position to conduct statistical analyses related to data management, including the evaluation of data quality, the estimation of annual catches, and the design of sampling programmes.

4 References

Anonymous. 1998. Report of the Eleventh Meeting of the Standing Committee on Tuna and Billfish, 28 May – 6 June 1998, Honolulu, Hawaii, United States of America. Secretariat of the Pacific Community, Noumea, New Caledonia. 108p. http://www.spc.org.nc/oceanfish/Docs/SCTB11.pdf

Anonymous. 1999. Report of the Third Meeting of the Tuna Fishery Data Collection Forms Committee, 9–10 December 1998, Brisbane, Queensland, Australia. Secretariat of the Pacific Community, Noumea, New Caledonia, and Forum Fisheries Agency, Honiara, Solomon Islands. 84p. http://www.spc.org.nc/oceanfish/Docs/FC_1998.pdf

Anonymous. 2001. Report of the Fourth Meeting of the Tuna Fishery Data Collection Committee, 6–8 December 2000, Brisbane, Queensland, Australia. Secretariat of the Pacific Community, Noumea, New Caledonia, and Forum Fisheries Agency, Honiara, Solomon Islands.

CCAMLR. 1999. Fishery Data Manual. CCAMLR, Hobart, Australia.

Everett, E., M.G. Hinton & W.H. Bayliff. 1991. Procedures for Collection and Handling of Tuna Fishery Data by Field Station Personnel. Revision C, January 1991. Inter-American Tropical Tuna Commission, La Jolla, California, United States of America. 46p.

FAO. 1999a. Guidelines for the Routine Collection of Capture Fishery Data. Prepared at the FAO/DANIDA Expert Consultation, Bangkok, Thailand, 18-30 May 1998. FAO Fisheries Technical Paper. No. 382. Rome, FAO.

FAO. 1999b. Legal Aspects of the Collection of Fisheries Data, FAO Fisheries Circular No. 953. Rome, FAO.

FAO. 1999c. Report of the eighteenth session of the Coordinating Working Party on Fishery Statistics. Luxembourg, Grand Duchy, 6-9 July 1999. FAO Fisheries Report No. 608. Rome, FAO. 1999. 62p.

FAO. 2000. Satellite-based vessel monitoring systems international legal aspects & developments in state practice. FAO Legal Papers Online #7. http://www.fao.org/legal/Prs-OL/vms7.pdf

FAO. 2001. Report of the nineteenth session of the Coordinating Working Party on Fishery Statistics. FAO Fisheries Report No. 656. Rome, 10-13 July 2001. 91p.

FFA. 1996. 6th Technical Consultation on Fishing Monitoring Systems. FFA Report #96/31.

Koh, J., D. Moon & D. An. 2002. National tuna fisheries report in 2002, Republic of Korea. Working Paper NFR–10. Fifteenth Meeting of the Standing Committee on Tuna and Billfish, 22–27 July 2002, Honolulu, Hawaii, United States of America. National Fisheries Research and Development Institute, Busan, Korea. 4p.

ISC 2002. Report of Statistics Working Group. Third Meeting of the Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Nagasaki, Japan, January 2002.

Lawson, T. A. 2001. Observer data held by the Oceanic Fisheries Programme covering tuna fishery bycatches in the western and central Pacific Ocean. Internal Report No. 45. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia. 40p.

Lawson T. 2002. Status of data collection, compilation and dissemination. SCTB15 Working Paper SWG-1. Hawaii, July 2002.

Lawson, T., P. Williams, C. Millar and E. Schneiter. 2002. Data requirements of the SPC Oceanic Fisheries Programme and status of data. Oceanic Fisheries Programme Internal Report No. 47.

Miyake, M. 1990. Field Manual for Statistics and Sampling of Atlantic Tunas and Tuna-Like Fishes. Third Edition. International Commission for the Conservation of Atlantic Tunas, Madrid, Spain. 184p.

Williams P.G. 2002. Current status of data available from the Indonesian and Philippines domestic tuna fisheries. SCTB15 Working Paper SWG-7. Hawaii, July 2002.

5 Figures

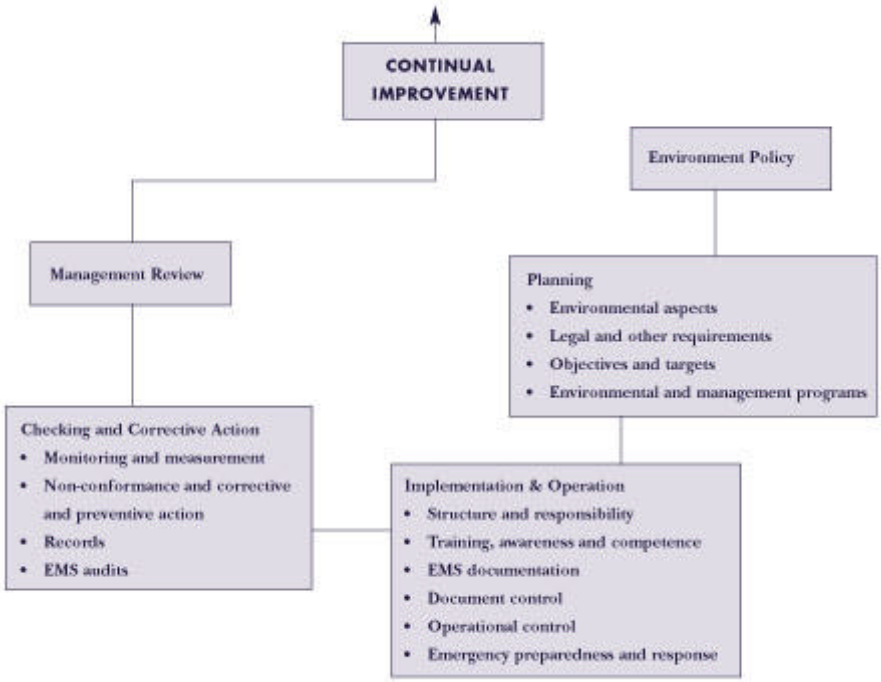

Figure 2.1 Best Practice Management. From: AS/NZS ISO 14001 (Int). (1995). Environmental management systems; Specifications with guidance for use.

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WCPFC/PrepCon/WP.10

Interim Advice to the Preparatory Conference for the Western and Central Pacific Fisheries Commission (WCPFC)

Review of Data Standards, Technical Capabilities and Data Sharing Policies for the Western and Central Pacific Region

Prepared for

**The Preparatory Conference
For the Western and Central Pacific
Fisheries Commission (WCPFC)**

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By

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List of Acronyms

CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CECAF	Commission for the Eastern Central Atlantic Fisheries
CES	Catch and Effort Statistics
CPUE	Catch Per Unit Effort
CWP	Co-ordinating Working Party on Fishery Statistics
EEZ	Exclusive Economic Zone
EU	European Union
Eurostat	Statistical Office of the European Community (European Commission)
FAO	United Nations Food and Agriculture Organisation
FFA	Forum Fisheries Agency
FIDI	Fishery Information Data and Statistics Unit
FIGIS	Fisheries Global Information System
FTP	File Transfer Protocol
GAM	Generalised Additive Model
GFCM	General Fisheries Commission for the Mediterranean
GLM	Generalised Linear Model
HMS	Highly Migratory Species
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IOTC	Indian Ocean Tuna Commission
ISC	Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean
ISCAAP	International Standard Statistical Classification of Aquatic Animals and Plants
IWC	International Whaling Commission
MCS	Monitoring Control and Surveillance
MHLC	Multilateral High Level Conference
NADS	Non-target, Associated and Dependent Species
NAFO	Northwest Atlantic Fisheries Organisation
NASCO	North Atlantic Salmon Conservation Organisation
OECD	Organisation for Economic Cooperation and Development
OFP	Oceanic Fisheries Programme
PrepCon	Preparatory Conference
RFMO	Regional Fisheries Management Organisation
SCTB	Standing Committee on Tuna and Billfish
SPC	Secretariat of the Pacific Community
STATWG	Statistics Working Group of the ISC
TAC	Total Allowable Catch
UNFSA	United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks
VMS	Vessel Monitoring System

VPA	Virtual Population Analysis
WCPO	Western Central Pacific Ocean
WG	Working Group

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1 Introduction

1.1 Background

The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean was concluded in July 2000. The Convention was opened for signature at Honolulu on 5 September 2000. The Conference that negotiated the Convention passed a resolution establishing a Preparatory Conference (PrepCon), which met for the first time in April 2001 in Christchurch, NZ.

During the meeting, the PrepCon established two open-ended working groups:

- Working Group I (WGI) on issues relating to the organisational structure of the Commission, its budget and financial contributions.

- Working Group II (WGII) on the scientific structure of the Commission and the provision of interim scientific advice.

During the second session of the Preparatory Conference (PrepCon2), WGII reviewed and gave preliminary consideration to the Commission's needs with respect to:

1. Data requirements, including current gaps in data coverage and standards for data collection and management;
2. Science, and in particular stock assessment and advice on stock status in the short term and ongoing;
3. Research priorities and research planning and co-ordination;
4. Review of assessments, analyses and other scientific work.

WGII established an ad-hoc task group to consider the future information needs to support discussions and progress on matters related to the scientific activities of the Commission. Drawing upon the material from the ad-hoc task group the working group agreed that the following matters, amongst others, should be addressed, as far as possible, prior to the next meeting of the working group:

1. An investigation of the technical capabilities, and security and data-sharing policies of existing organisations, including those of participants in the Preparatory Conference, with the view of possibly contracting out interim data services.

2. A compilation and review of standards for collection, verification and for the timely exchange and reporting of data on fisheries currently practised by existing arrangements (e.g. SCTB, ISC, IATTC, CCAMLR, CCSBT and ICCAT) and an assessment of their suitability for use by the Commission.

This report addresses these matters.

1.2 The requirement for data

The quality of fishery data required for fishery management cannot be determined in isolation. The purpose for which data are needed dictates the required resolution (see Section 1.2). For example, to close a fishery that reaches an overall TAC requires data of lower resolution that for a fishery where quota is allocated to individual vessels. Similarly, the time scale on which data are needed also varies depending on their intended use. For example, catch and effort data collected for use in an annual stock assessment analysis may be reported with several months delay between the catch event and the time of

recording in the database. However, catch data that are used to monitor progress during the season towards a catch limit must be reported with minimal delay to ensure that the fishery is closed when the limit is reached.

Fishery collection programs often develop during the initial phases of a fishery, and continue even as the fishery and exploitation patterns change. Periodic review of the fishery, its management objectives, and the data collection program assures that the data collection program remains compatible with current data needs.

The data requirements for the types of scientific analyses needed to manage WCPO tuna fisheries in accordance with the Convention text are essentially those specified by other tuna commissions. The most basic data are catch (by weight and/or numbers), effort, and length frequency data. If the fish can be aged, which in the case of tuna is very rare, then age sub-samples, along with other biological data are needed to develop estimates of the various biological relationships (growth, mortality, length-weight etc.). All these data should be collected on an ongoing routine basis. Ideally, they would be supplemented by other targeted data collection (surveys, tagging, etc.). Regarding fishing effort, it is important to collect vessel specific information, for example through a vessel register and observer programme.

One of the keys to reliable tuna assessments is the collection of representative data across the full range of the species being caught. First and foremost this provides good estimates of total removals. But, given the distribution of HMS is affected strongly by the environment, it is vital to cover the full area, especially when developing abundance indices. Unlike most other ocean areas with tuna fisheries, the WCPO contains many small islands, which affect oceanic processes and make interpretation and extrapolation of data much more difficult. Finally, many of the longliners work preferentially on the high seas, rather than within an EEZ, and data from them is vital. Longline effort data are usually considered easier to interpret than purse seine effort data.

Regarding the scale of data required for stock assessment, the characteristics of HMS and their fisheries make it very important to collect data at the finest scale possible. This points essentially to haul-by-haul data.

For most tuna species, especially tropical tunas, ageing is extremely difficult, and currently not possible for some species. In those species, good quality, comprehensive length frequency data (at as fine a geographical scale as possible) and growth curves are needed, with large enough sampling fractions and full area coverage. This is true whether one is using simple production models, age-structured production models, VPA-like assessments or integrated assessment methods.

The other vital element is catch per unit effort (CPUE) data. In many cases, these are the only data that might produce an index of abundance. It is now routine to analyse these data with complex statistical analytical tools such as generalised linear models (GLMs) and generalised additive models (GAMs). These models try to account for targeting changes over time, vessel changes, and spatial distribution. Commonly in these analyses every factor is significant, as usually is every interaction term. For these reasons, these analyses are most effective when undertaken on detailed haul-by-haul data (e.g. from logbooks) with exact positions, supplemented by observer data. However, this ideal is rarely met. Most tuna commissions do not have mandatory submission of data at such a fine scale. More commonly, catch and effort data are required on a scale of 1-degree squares by month, while length data may be required on a scale of 5-degree squares by month or quarter. It is sometimes possible to get access to more detailed haul-by-haul data, but the problem is that collection of data at this scale impinges on issues of commercial confidentiality, and unless fishers and flag states are convinced that confidentiality will be preserved, there will be a reluctance to submit the necessary information.

2 Data Standards

2.1 Introduction

In this section we have compiled and reviewed standards for collection, verification and for the timely exchange and reporting of data on fisheries currently promoted and/or practised by existing arrangements.

The Convention calls for the Commission to:

- Adopt standards for collection, verification and for the timely exchange and reporting of data on fisheries for highly migratory fish stocks in the Convention Area in accordance with Annex I of the Agreement, which shall form an integral part of this Convention (Article 10(1d)).

- Compile and disseminate accurate and complete statistical data to ensure that the best scientific information is available, while maintaining confidentiality, where appropriate (Article 10(1e)).

With regard to data collection, Annex I of the UNFSA explicitly requires fishery data collection at an operational level. Conversely, obligations relating to specifications for data reporting are not clearly defined. Nevertheless, given reference to the need for data collection and compilation enabling – *statistically meaningful analysis for the purposes of fishery resource conservation and management* – this too points to the need for catch and effort reporting at the finest stratum possible, at the operational level.

> *States should ensure from vessels flying their flag that data are collected on fishing activities according to the operational characteristics of each fishing method (e.g., each individual tow for trawl, each set for long-line and purse-seine, each school fished for pole-and-line and each day fished for troll) and in sufficient detail to facilitate effective stock assessment* (Article (2a))
>
> *States should agree, within the framework of subregional or regional fisheries management organizations or arrangements, or otherwise, on the specification of data and the format in which they are to be provided, in accordance with this Annex and taking into account the nature of the stocks and the fisheries for those stocks in the region* (Article (2d))

The management of HMS requires regional co-ordination through the development of common standards (guidelines) influencing collection, verification and reporting of data. Criteria need to be established which, when applied, permit data collected at a national level to be used as the source of regional data. The primary objective of standardisation, in this context, is therefore to facilitate the integration of data collected under different data collection systems through the application of common standards and classification codes. The application of common standards and codes has a particular influence on the extent to which data can be integrated within a central data repository. Significant benefits can be obtained in both the quality and value of data where standards are applied.

The use of data exchange standards, in addition to offering a framework of guidelines defining the format of submissions, provides ready means of integrating data from disparate sources, and in so doing enables Regional Fisheries Management Organisations (RFMOs) to offer information and services in improved ways.

Timely exchange (reporting) of data will rely to a large extent on the structure of national data collection systems. Significant benefits in timeliness of data reporting can result through ensuring that standard (compatible) exchange formats are generated; recent IT advances have been made in the development of methods of data exchange that are independent of proprietary software or hardware.

In the development of standards applicable within the region the Commission will need to consider the particular situations of developing countries as these countries may not be able readily to implement standards designed in the context of more developed fisheries. Specific regional examples include the Philippines and Indonesia where the capacity to monitor domestic fleets is limited.[1] On the other hand the national capabilities of the Island Nations in Convention Area are substantially augmented through their membership of FFA and SPC.[2]

Finally, it is essential that the initial system of standards and classifications is not only capable of meeting immediate data needs, but that it is also flexible enough to meet those needs which might evolve over time.

2.2 Standards for data collection and reporting

2.2.1 CWP

The FAO promotes various instruments, which present overarching guidelines for collection and exchange of fisheries data, including: 1995 United Nations Fish Stocks Agreement (UNFSA), the FAO Compliance Agreement, and the FAO Code of Conduct for Responsible Fisheries. Given clear reference to the UNFSA in the recommendations of the MHLC consultation of 1996 and subsequent Convention text, it is important for the Commission to be aware of FAO standards developed in support of statistical systems guided by these instruments. This includes internationally recognised definitions, classifications and codes, which the FAO recommends be used where possible and appropriate.

The FAO co-operates with regional fisheries bodies, particularly through the Co-ordinating Working Party on Fishery Statistics (CWP), to standardise reporting forms, procedures, definitions, classifications, and other related documentation.

The CWP has as its purpose to:

- Keep under continuous review the requirements for fishery statistics for research, policy-making and management,
- Agree standard concepts, definitions, classifications and methodologies for the collection and collation of fishery statistics, and
- Make proposals for the co-ordination and streamlining of statistical activities amongst relevant intergovernmental organisations.

Current Membership of the CWP includes CCAMLR, CCSBT, FAO, IATTC, ICCAT, ICES, IOTC, NASCO, NAFO, OECD, EU/Eurostat, SPC and the IWC. The OFP Fisheries Statistician is currently chairman of the CWP.

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[1] As noted in Williams (2002), Indonesia and the Philippines represent two of the largest domestic tuna fisheries in the world. The estimated tuna catch from the Indonesian and Philippine fisheries contribute 17% and 13% of the WCPO total catch, respectively, and 13% and 9% of the Pacific Ocean total catch, respectively. Appropriate data from these fisheries are therefore fundamental to regional tuna stock assessments.

[2] Commencing in 1988, tuna fishery databases have been developed and installed on computers in fisheries departments of fourteen SPC member countries. The systems are customised according to the needs of the member country, but typically allow the production of data summaries and maps of fishing activity within their EEZ. Some systems also include a logsheet data entry component and components for landings data, observer data and length-frequency data. In cases where data entry is carried out at SPC, regular data updates are sent via email or on CD-ROM with the CES data retrieval system. Countries that have received support for their fisheries databases include Federated States of Micronesia, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, New Caledonia, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga and Tuvalu. In the past, the OFP has also provided support to Guam and the Northern Marianas; however, support for these systems has since been provided by the National Marine Fisheries Service (http://www.spc.org.nc/OceanFish/Html/Statistics/StatSysSCTB.htm).

It is strongly recommended that the Commission adopt standard codes and co-ordinate with FAO and the CWP in their development. Where it is necessary to adopt unstandardised codes very rapidly, databases can easily be configured to accept temporary codes for later replacement with standard codes.

2.2.1.1 Review of statistical requirements

A critical element to ensure that appropriate standards are maintained, whilst reflecting the changing needs and priorities of scientists, statisticians and fisheries managers, is the need for ongoing review and adaptation. Recent initiatives of the CWP, relevant to the Commission, include the recognition that a more integrated approach to fisheries management is needed; a consequence of this being the need for data outside the realm of traditional fishery statistics, including data relating to biological, environmental, social and economic aspects of fisheries. Concepts and definitions for the parameters necessary to address these additional aspects are under continued review, particularly as regards mechanisms for their assimilation into existing data collection programmes. An example is that, although not mandated to define social and economic indicators, in recognition of the increasing importance of social and economic data, the CWP recognises that there is a role to be played in addressing the data requirements necessary to quantify them (Inter-Sessional Meeting of the CWP, 2002).

2.2.1.2 Standard classification codes and definitions

The use of internationally agreed codes is an important element facilitating the collation of fishery statistics from disparate sources, at national, regional and at international levels. International classification codes agreed by the CWP include:

- International Standard Statistical Classification on Aquatic Animals and Plants (ISSCAAP)
- International Standard Statistical Classification of Fishing Vessels (ISSCFV)
- International Standard Statistical Classification of Fishing Gears (ISSCFG)

Standard classification codes drawn-up by the CWP have been widely accepted. Periodic reviews are undertaken in an effort to reflect changes in fisheries and the needs of scientists, statisticians and managers. Issues recently addressed by the CWP have included proposed revisions to ISSCAAP and ISSCFV (FAO, 2001).

Also with regard to standard classifications, a recommendation has recently been put forward by the SPC and IATTC proposing that once the Commission becomes operational, statistical areas be modified to reflect areas used for statistical purposes by the Commission, IATTC, and other RFBs in the region.

In addition, the CWP has recommended improvements to standard definitions. A recommendation was made by the CWP for an amendment to the definition relating to attribution of catch nationality; specifically with regard to flag state reporting obligations (FAO, 1999c). The recommendation was made in recognition of the complex situation surrounding DWF vessel reporting, particularly when fishing in territorial waters under access or joint venture arrangements. The updated definition has been implemented by the SPC-OFP when determining catch and effort reporting obligations (Lawson et al., 2002); this matter is discussed in more detail in Section 2.6.1.

2.2.1.3 Reporting methods

Recognising the importance of harmonised data reporting, the CWP has also addressed the issue of standardising format for data reporting. Traditionally, focus has orientated towards the standardisation of paper reporting formats such as the STATLANT questionnaires, to which the CWP made a major

contribution with regard to the specification of measures of fishing effort by gear type. The name itself betrays the origins of the CWP as a co-ordinating body for Atlantic statistics. STATLANT forms are dispatched (together with instructions for completion) by the FAO on behalf of RFMOs to the relevant national authorities.

- STATLANT A questionnaires are used for reporting annual nominal catch by species and by statistical sub-area, division or sub-division.
- STATLANT B questionnaires are used for reporting fishing effort by month, vessel size class, gear and statistical sub-area, division or subdivision and together with associated catch by species.

Statlant A and B questionnaires have been used by CCAMLR to collate statistics for major fishing areas 48, 58 and 88 (Southern Oceans), by NAFO for area 21 (Northwest Atlantic), by ICES for area 27 (Northeast Atlantic), by CECAF for area 34 (Eastern Central Atlantic), and by GFCM for area 37 (Mediterranean and Black Sea).

With the specification of finer and finer detail in catch reports (many organisations now require that haul by haul data are reported from defined fisheries), Statlant data are probably of less use to individual RFMOs than they were previously. If they are the only form of reporting on some fisheries, they are obviously essential, but in the case where there are better data available to the organisation, Statlant data still have a use in being public domain summaries of data on catch and effort.

FAO only collates the Statlant A questionnaires into its publication of global fisheries statistics, and the organisations listed above have generally found the Statlant B information to be more useful for their purposes. Thus, if the Commission wishes Statlant B data to be available publicly it will have to publish them itself. This should, however, be relatively inexpensive especially if web-based publication is envisaged.

More recent attention of the CWP has focused on the need for standards to be defined for reporting using electronic media. An example is the recognition of the CWP of the widespread implementation of VMS technology and the need for international reporting standards. The CWP agreed that there is an urgent need for an international standard format which accommodates the reporting of position, fishing activity, catch and other data through VMS. The CWP recommended that an international standard be developed and promoted, and that FAO consider facilitating this process as a matter of urgency (FAO, 1999c).

2.2.2 FIGIS

The Fishery Global Information System (FIGIS) is a global information system on fisheries developed by FAO aimed at providing policy makers with timely, reliable strategic information on fishery status and trends on a global scale. Designed as a policy-based information system, it provides a single entry point to strategic data, information, analyses and reviews of fisheries issues and trends. A key principle of FIGIS is that of ensuring that information is quality-controlled and maintained up-to-date. FIGIS' maintenance will rely upon a network of partners (initially RFMOs and National Centres of Excellence) contributing to the system according to their own mandate. As a corollary, the system's control is decentralised: contribution and maintenance rights are assigned to FIGIS partners who are the data owners, these partners having to share certain standards and adhere to certain rules aimed at ensuring the best possible quality of data and information. Being a distributed information system, FIGIS will allow states to fulfil their reporting obligations according to international requirements. In that respect, FAO has already agreed with SPC, ICCAT, ICES, and NAFO on the development of case studies.

For effective fisheries information management, FIGIS needs to promote and agree on standards: thesauri with agreed vocabularies and classifications for indexing, glossaries to ensure definitions of terms, and shared concepts. Norms for data sets content management are under development, including documentation of information quality assurance processes. FIGIS refers to the Dublin core XML Metadata standard to set up its own proposal for a Fisheries XML information standard.

2.2.3 ISO

The International Organisation for Standards (ISO – www.iso.org) produces internationally agreed standards for quality management systems (ISO9000) and for environmental management systems (ISO14000). Under the ISO format, standards developed must:

- Consider and organise the purpose of the standards,
- Define the problem areas that the standards must solve,
- Determine the "best practices" available, and
- Select the actual measures to assure that the standards are met.

The main attributes of best practice are based on the standards established by ISO 14000. In environmental management these standards require consensus planning and comprehensive stakeholder involvement, based on full information and equal empowerment. The ISO 14000 standards for environmental management are scale-independent: they apply to environmental management of regions, sectors, specific projects and individual operational activities.

The rigorous and time-consuming process to achieve full ISO certification for data collection management standards will not likely serve the purpose of the Commission. However, a less rigorous procedure that follows the ISO format will provide an opportunity for the PrepCon to fully evaluate the details of sampling requirements in the context of data quality needs, e.g. see Figure 2.1.

2.2.4 1996 MHLC Technical Consultation

The MHLC Technical Consultation of 1996 agreed several outline standards for collection, verification, and exchange and reporting of data. During the Technical Consultation, a drafting group, consisting of Representatives of Japan, Korea, New Zealand, Papua New Guinea and the United States, assisted by SPC and FFA staff drafted recommendations for co-operation in data collection and exchange and research co-operation under some future regional fisheries management organisation or arrangement. The resulting recommendations were as follows:

In recognition of the need to progress the development of scientific support for future conservation and management of highly migratory species in the WCPO, the Consultation affirmed its support for:

- *Collection by flag states of catch (target and non-target species), effort and other data at a vessel operation level, i.e. logbook data;*
- *Provision of such data for both waters under national jurisdiction and the high seas at a degree of detail and at a level of resolution to be agreed upon to enable effective stock assessment; and*
- *Co-operation in scientific programmes to generate other data required for effective stock assessment.*

Regarding the future data needs of WCPO fisheries, the Consultation recommended that any future co-operative scientific data collection in the WCPO be consistent with the guidelines and requirements of the UN Implementing Agreement, especially as set out in Annex I of that agreement, and be established pursuant to a regional fisheries management organisation or arrangement, taking into account the nature

of the stocks and the fisheries involved. Regarding the specification of agreed minimum requirements of any future scientific data collection programme, the Consultation also recommended that the following elements be included in any such future programme:

(1) Flag states should compile annual catch statistics by species, covering all fishing activities for each fleet.

(2) Flag states fishing for tuna in the WCPO should collect catch, effort and other data at the fishing operation level (i.e. logbook data in a format to be agreed upon) for all commercial tuna fishing activity, regardless of whether such activity takes place in waters under flag state jurisdiction, other national jurisdiction or on the high seas. The logbook data should be validated with landings or other information.

(3) Annual catch statistics should be made available as soon as possible to all parties involved in the arrangement. Agreement should be reached on how to consolidate logbook and other data for all fleets in a confidential database. Access to such data should be under conditions determined by international agreement.

(4) A data repository system for length-frequency and associated data should be established so that such data can be used under agreed conditions for stock assessment and other tuna research projects. A co-ordinated sampling plan for all major species should be developed and implemented through the co-operation of the parties involved in the arrangement.

(5) A scientific observer programme, based on a regionally co-ordinated sampling design, should be developed and implemented through an agreement among the parties involved in the arrangement. Observers should collect data on fishing operations, including bycatch and discards; they should also conduct biological sampling of both the target and non-target catch, and collect other operational data as appropriate.

(6) *All parties involved in the arrangement should co-operate in developing and implementing scientific research programmes of relevance to stock assessment of target and non-target species caught by tuna fisheries in the WCPO.*

Points (1) and (2) refer specifically to data types that are required for stock assessment analyses and should be collected by flag states. Point (4) also refers to another important data type - length frequency data - although in the context of data storage rather than data collection. Nevertheless this is another data type that is important for stock assessment. The following Section (Section 2.3) therefore presents a brief review of data types required by international regional fisheries organisations, such as the WCPFC, to meet their obligations of fishery management advice based on the best scientific evidence available. The importance of data quality and issues relating to the promotion of data quality and of validation of data resulting from several types of data collection (e.g. logbooks, observer programs) is stressed in the following section. Finally, we discuss expectations regarding timely data reporting to the organisation and standards for data exchange (point (3) of the Technical Consultation list).

Options available for collecting these data (e.g. observer programs mentioned in point (5), the sampling plan mentioned in point (4) and the scientific research programs mentioned in point (6) of the Technical Consultation list) are discussed in Section 3. This section also discusses regional capabilities for collecting and handling various types of data, including the data repository system mentioned in point (4) of the Technical Consultation list. In this context we discuss technical capabilities and particularly some of the specific hardware and software needs of organisations undertaking this type of data storage and processing.

2.3 Data types

As described in Section 2.2.4, a number of recommendations were presented in the 1996 MHLC Technical Consultation, specifically relating to data collection, reporting and associated standards,

including a discussion of the overarching data types needed. The data types and the bodies charged with their collection are summarised below:

Data type	Responsibility for collection
Annual catch statistics	Flag state
Catch and effort data	Flag state
Logbook validation data	Flag state
Length data and associated biological information	All parties to the Commission through a co-ordinated sampling plan
Operational data, data on bycatch and discards, biological sampling of target and non-target species	All parties to the Commission through a regionally co-ordinated observer or port sampling programme
Research programmes of relevance to stock assessment which could broadly be interpreted as collection of biological, environmental and ecological data	All parties to the Commission through co-operative research

In discussing the data usually required to undertake stock assessment and other related scientific analyses that underpin management advice, we consider four principal categories of data:

- Commercial fishery data including catch and effort statistics, landings and transhipment records (both aggregated and fine-scale) collected on the basis of flag state submissions;
- Biological and ecological data, including by-catch information, length frequency data, sex, maturity, age data, environmental data etc.;
- Environmental data, including meteorological and oceanographic information;
- Economic data, including market information, trade data, commodity, consumption, fisher information etc.

In addition to the above data categories, we also recognise the category of technical data. This comprises the type of data collected on vessels characteristics and operational history that would be collected as part of a vessel registration process for use in standardising fishing effort data (see Section 1.2) and for other Commission purposes.

2.3.1 Commercial fishery data

Commercial fishery data represent the most fundamental data type required to monitor a fishery. It can also contribute, once a sufficient time series has been collected, to the assessment of stock status and potential. Annual catch estimates and annual catch rates offer a baseline for monitoring long-term trends in a fishery, whilst for stock assessment and other population modelling, finer scale data are usually needed. Catch and discard data are required for both target and non-target species, although direct commercial sources are usually limited with respect to the latter.

Regarding standardised terminology for catch statistics, the following terms are suggested Alverson et al. (1994), proposed at a bycatch workshop in Newport, Oregon (U.S.A) in February 1992 (McCaughran 1992):

- Target Catch — The catch of a species or species assemblage that is primarily sought in a fishery, such as shrimp, flounders, cods;
- Incidental Catch — Retained catch of non-targeted species;
- Discarded Catch — That portion of the catch returned to the sea as a result of economic, legal, or personal considerations;
- Bycatch — Discarded Catch plus Incidental Catch.

Landings and transhipment records comprise an important source of information with which reported catch data can be verified and validated; both in terms of absolute volume of catch and reported species composition. Additional sources of data used to verify reported catches, include observer programmes and port sampling programmes. Observer programmes are a particularly important source of data with which catches can be adjusted to reflect actual catch (all species landed on deck) rather than the proportion of catch that is retained.

Basic effort data, such as number of vessels and days fished must be supported with detailed information regarding vessel and gear attributes to allow standardisation of effort indices; this may be critical for estimating indices of abundance and for use in stock assessment models (e.g. surplus production models and MULTIFAN-CL models). Commercial sources of effort data, including details of vessel and gear attributes include operational logsheet reporting, vessel registers and vessel activity reports.

The following list identifies some of the key commercial fishery data types in the context of scientific research and the monitoring of catch and effort:

Commercial fishery data collection	
Data type	**Description/Source**
Annual catch estimates	Estimates of annual catch by gear and species. Catch is defined as all species landed on deck; discard as all species caught and subsequently discarded. Based on verifiable logsheet, unloading, or other commercial catch data sources (trade statistics etc.)
Catch data	Landings /unloading data Data on volumes by species, origin of catch (e.g. statistical area) Mechanism for confirmation of reported landed catch volume and composition. Catch data are whole (green) weight only. If fish are processed on board, independent collection of data on conversion factors is highly recommended.
	Port sampling Landed catch composition – volume by species
	Transhipment data Data on volumes by species, origin of catch (e.g. statistical area)
	Scientific observer data Detailed records maintained of catch composition (catch and by-catch species) Recorded on a haul-by-haul basis / by statistical area / as trip summary information
	Trade statistics Including catch documentation and trade documentation schemes Mechanism to verify legality and identify unreported catches (respectively).
Effort data	Vessel registers and activity reports Catalogue of operator, vessel and gear attributes (standardising effort) Trends in vessel activity
	Observer data Operational data recorded on a haul-by-haul basis Gear and vessel attributes, including any modifications to gear and setting practices Recording of other vessels sighted
	Surveillance reports Patrol reports used to verify licensed vessel activity and a means of identifying and recording IUU fishing activity
	VMS data Mechanism for verifying licensed vessel activity and can act as an M & E mechanism ensuring complete catch and effort enumeration (means of identifying missing data sets and intelligence prompting requests for data)
Catch and effort data	Flag state reporting based on vessel records – catch and effort logsheets • haul by haul • Fine-scale (by vessel per fishing operation) • Aggregated catch and effort data by time, area and gear strata (e.g. monthly 5° x 5° for longline and 1° x 1° for surface gears) In some cases individual vessel catch and effort records transcribed at port in a prescribed format (IATTC).
	Observer data Usually detailed records of catch and bycatch recorded at an operational level (haul-by-haul).

2.3.2 Biological and ecological data

Biological and ecological data types supplement commercial fishery data and are collected either through targeted research initiatives or through monitoring programmes such as port sampling and observer programmes. Regular monitoring programmes, particularly observer programmes, provide a valuable source of supplementary data, which are not usually available from commercial catch and effort data. These include: catch composition, discards of target species, incidental catch and discard of non-target species, details of fishery interactions with species of special interest (e.g. marine mammals, seabirds and turtles) and changes in operational factors or gear. Of particular importance for observer programs in tuna fisheries is the recording of bycatch, especially in view of the increased emphasis on ecosystem approaches in modern fisheries management policy.

Data collected in support of age and growth studies include length data, otolith samples and tag and recapture data. Tag and recapture data together with genetic data also constitute an important source of information on stock structure. Tuna ecology studies are reliant on detailed ecosystem information with which food web structures may be modelled; data sources include samples of stomach contents and muscle / tissue biopsy samples.

Biological and ecological data collection	
Data type	**Description/Source**
Bycatch, discard and other data	Observer data Number and/or weight of discarded catch (target and non-target catch) Incidental mortality data of species of scientific interest (e.g. marine mammals, seabirds, turtles)
Length data	Observer sampling Information relating to unsorted catch according to defined sampling protocols (protocols differ based on scientific objectives (e.g. development of age length keys etc.).
	Port sampling Collect length frequency information based on samples of landed catch.
	In some cases crew record length frequency information of target species
Movement and growth data	Tagging programmes Supported by observer and crew records of recapture and sampling for ageing material
	Fishery independent research – aerial surveys (ICCAT/IOTC)
Morphometric data	Observer sampling Morphometric information, conversion factor information etc.
	Port sampling Additional information to length data collected on occasions
	Fishery independent research
Ecological data	Observer sampling Stomach contents, genetic data, etc Anecdotal information may provide qualitative data to inform future research.
	Fishery independent research Details of species interactions including predator prey relationships etc. Direct effects on non-target species and habitat. Details of species interactions including predator prey relationships etc. Direct effects on non-target species and habitat.

2.3.3 Environmental data

Tuna distribution and abundance have been shown to be sensitive to environmental variability. In particular, the El Niño Southern Oscillation (ENSO) appears to have important consequences both for spatial distributions and migrations of the tuna populations and for their level of recruitment and biomass. Environmental data are therefore important for the determination of effective effort, in longline and surface fisheries, and in monitoring the extent and the influence of, oceanographic and meteorological processes on tuna fishery stock dynamics, migrations and production.

2.3.4 Economic and sociological data

The Convention is very clear regarding the consideration of sociological and economic criteria in the application of management measures. This stems primarily from the need to take into account the special requirements of developing States in the Convention Area, particularly small island developing States (Article 5(b)), both in terms of the allocation of allowable levels of catch and effort (Article 10(3)), and inclusion in the scientific process (Article 30(3)).

In terms of scientific activities in support of these objectives, however, the Convention mentions only the collection and evaluation of economic and other fisheries-related data and information relevant to the work of the Commission (Article 10(1j)). To give effect to these objectives, the Commission will need to consider what specific information will be needed to support the application of the type of criteria listed in Article 10(3).

Fisheries managers and policy makers increasingly recognise the importance of social and economic information in fisheries management. The collection and evaluation of social and economic data, when integrated with fishery and biological data, can provide an important source of advice relating to optimal levels of fishing, from a bio-economic point of view. This is particularly important for small island developing States (SIDS), where the fishing industry is often regarded as the cornerstone of the economy contributing socially through employment and protein and directly to the economy through contribution to GDP and generation of foreign exchange.

This increasing trend in the demand for economic data has resulted in a number of organisations, most notably the CWP, stressing the need for collaboration between fishery statisticians, economists and managers towards determining the types of data necessary to quantify the social and economic contribution of fisheries.

2.3.5 Technical data

The concept of a vessel register is now widely accepted as a valuable means of collecting vital information on vessels technical details and capacities (important for analysis of catch per unit effort data) and also for tracking vessel ownership and standing in terms of compliance with national and international management regulations. Fishing operators seeking to access resources managed under a regional fisheries arrangement should be required to register with the regional organisation and provide the required information on their vessel, company, master and catches. In Part V, Article 24 of the Convention text, vessel register information and procedures are discussed. Information requirements set out in Annex IV of the Convention:

1. *Name of fishing vessel, registration number, previous names (if known), and port of registry;*
2. *Name and address of owner or owners;*
3. *Name and nationality of master;*
4. *Previous flag (if any);*
5. *International Radio Call Sign;*
6. *Vessel communication types and numbers (INMARSAT A, B and C numbers and satellite telephone number);*
7. *Colour photograph of vessel;*
8. *Where and when built;*
9. *Type of vessel;*
10. *Normal crew complement;*
11. *Type of fishing method or methods;*
12. *Length;*
13. *Moulded depth; Beam;*

14. *Gross register tonnage;*
15. *Power of main engine or engines;*
16. *The nature of the authorisation to fish granted by the flag State;*
17. *Carrying capacity, including freezer type, capacity and number and fish hold capacity.*

These data surpass FAO standards, but should nevertheless be regarded as an agreed framework upon which more specific information requirements can be established. It is crucial that standard units of measurement are agreed to facilitate harmonisation of data from different sources. This is particularly important, for example, with metrics that may be important for assessing fishing effort, such as Gross Registered Tonnage, which should be standardised to the international convention, not based on national conventions, which vary. Standard codes for potentially ambiguous data types are also an important component of vessel registers. These are particularly applicable with regard to vessel type and where operational details are required describing gear, processing facilities etc.

In addition to the information included in the list above detailed information is commonly submitted regarding: fishing gear attributes, including details of power blocks, winches, net type and configuration, hook size etc.; vessel technology in addition to communications equipment such as navigational equipment, fish finding equipment, EPRBs, transceivers (VMS) etc.; and, fishing vessel support, which may take the form of support vessels, helicopters etc.

2.4 Data quality

Data quality control is applied at two points in the data capture and handling process. Firstly there is verification of data submissions prior to insertion into the database. Secondly there are internal mechanisms to ensure the integrity of data in the database is maintained.

2.4.1 Data verification

The verification of data is essential to ensure that data are accurate, complete and give a true indication of the state or value of the factors under consideration. The problems associated with the collection of fisheries data mean that the risks of collecting erroneous or inappropriate data are very high without careful and statistically valid design and monitoring.

Standard data import routines can facilitate traditional manual crosschecks of reported data with independent sources and ensure data integrity during data entry. Different types of data will need to be verified in different ways. Some examples of methods to verify data include:

- Checking logbooks against landings data (e.g. sales notes);
- Sampling catches for species or grade composition;
- Comparing landings statistics with certificates of origin, trade and commodity production statistics (e.g. processed fish) and similar sources of information;
- Inspecting data collection methods by statistical staff;
- Interviews with fishers;
- Observer schemes or inspections;
- Reporting from sea on retained catch on entering and leaving the fishing zones;

- Using vessel monitoring systems, such as transponders, to monitor the position, catch and activities of vessels;
- Instituting airborne and shipboard surveillance, together with the boarding of vessels.

In cases where fishery-independent data, such as stock abundance indices from research surveys, are available, it is possible to use these as an independent check on CPUE indices based on commercial fishery catch and effort data. In cases of suspected serious misreporting of catches, it is even possible to use such fishery-independent data to obtain estimates of the commercial catches.

At the macro-level (typically national), food balance sheets can be used as an overall check of the consistency between production, utilisation, trade and consumption statistics. For such an exercise, it is necessary to convert all figures into live-weight equivalent units using appropriate conversion factors. Total fish production from capture fisheries and aquaculture, less quantities used for non-food purposes (e.g. fishmeal production) plus imports minus exports should correspond to the domestic food fish supply. It is usually expressed in per capita terms by dividing by the population size. The average per capita fish supply can then be compared with fish consumption estimates derived from food surveys. Large deviations from food survey results or large fluctuations from year to year suggest that there are problems with some of the statistics used in the calculations (FAO, 1998).

2.4.2 Data Quality Control

2.4.2.1 Overview

Data quality control is a key element of ensuring adherence to data quality standards. In this context, we consider data quality control in terms of its utility to managers, scientists and other interested parties. The data collected must be rational in order to form the basis of standard report summaries (weight of catch, location of catch, CPUE, etc.) against which progress of the fisheries is monitored or managed (output control, stock assessment, etc.).

The main issue to be addressed in data quality control is the identification of 'outliers' in the input data; e.g.: are catches / effort reported by any one vessel consistent with other reports coming in from vessels operating within the same fishery, at the same time, general location, with the same gear? How consistent are these data with historical pictures of how data have accumulated within any particular fishery? (See also discussion of the types of error types.) This requires some detailed level of understanding about 'average' expected conditions within any one particular fishery, under a given set of circumstances. For example, distributions of previous years' catch and effort data may be used to establish 'thresholds' above or below which input data are flagged (say, 95th and 5th percentiles - effectively, 'zero tolerance') as possibly suspect. Alternatively, depending on how data are assembled, individual input data sheets can be compared against current data accumulating from the fishery. 'Outliers' may also appear on position reports associated with catch records compared with detailed management measures, including conditions of licence, gear restrictions, area restrictions etc. which may be in force. These can be identified at the time of data entry in the same way as the genuine outliers described above.

It is also important to consider the 'completeness' of the data. On the assumption that any one vessel must submit a fishing report or a non-fishing report, the time series of accumulated data should be checked at the level of the individual vessel in order to identify any unaccounted gaps in the date sequence. This requires, for example, information on fishing plans and license periods for individual vessels.

The primary tool of monitoring data quality within a database is through database integrity constraints. Three mechanisms exist for implementing database integrity constraints dependent on the volume of data being processed. These are real-time, transaction and batch.

Real-time error trapping has become much easier in the last few years with the increase in speed of PC-based applications and their increased complexity. Single fields can now be checked within the data entry application against a set of possible values or that an entered value is within a defined range. Fields can also be checked relatively simply against each other as they are entered. For example take the latitude and longitude entered for the start and end of a haul. It is now quite a simple process to take the two positions, calculate the distance between the two (using the Great Circle functions) and check that this is within an appropriate range. For a wide variety of fields, pull-down menus of appropriate values can be added, e.g. only "N" or "S" can be entered for the latitude hemisphere field of a position.

Transaction processing occurs at the end of a single unit of data entry, i.e. a logsheet. Here error trapping can be implemented for a wide variety of fields. For instance, it is common to run a quick check to see that the values entered for a particular entry add up correctly to match an entered total. If they don't, the row is not submitted to the database and the user is prompted to check the data before proceeding to the next row. Another mechanism used for transaction processing is that of double entry or double keying of data. Normal practice for the double entry of data is to enter the data twice, i.e. a set of logbooks will be entered once by the first data entry person and then the entire set will be re-entered by a second independent data entry person. The two datasets will then be compared at the end of the entry of the second data record and any inconsistencies resolved by reference to the original paper record. This has been found to reduce substantially simple errors caused by e.g., operator's inability to read data on a data sheet, transposition of numbers, missing decimal points etc.

The double entry method is expensive, however, and requires a number of personnel to be available to enter one single dataset, it also doubles the size of the database. The compromise solution is double typing where each field in a data set is typed twice during entry before the user is passed onto the next record. The previous typing is obscured and any differences are highlighted at the end of the second row and resolved against the paper record. Only one correct set of data is retained in the database and one data entry clerk is needed. Probably the simplest mechanism at this level of data checking is to make the data entry clerk do a simple visual check of the data entered at the end of each record. Batch processing is similar to transaction processing, but occurs after a number of rows have been entered into the database. During batch error processing a series of complex analytical routines are run automatically, usually overnight or at weekends when data are not being entered. Data are then flagged as having passed or failed the checks. Data having passed the test are available for analysis immediately. Data having failed one or more of the error checks are flagged and will need to be checked by the user. It is possible to implement a system of data flags that allow a number of flags to be applied to a particular data record, to track where in the record errors have occurred. For example, data can be checked for a large array of potential problems including CPUE within a particular range, species average weights within ranges, and species composition not skewed towards by-catch species that may in fact be targeted against regulations. Each of these is allocated a unique flag, which is applied to the data error flag field for the record. In this way multiple errors can be traced for each record. It is quite common for errors to cascade through a record; once one field is wrong, the user continues to enter data incorrectly until the row is completed. This mechanism easily highlights these occurrences.

2.4.2.2 Types of errors

There are four types of data errors that commonly occur in database systems. These are completeness, consistency, currency, and accuracy. Completeness is a simple Boolean description of whether a datum has been filled or not. A datum is consistent if its value satisfies a set of constraints such as formal rules, logical requirements, or relational requirements, vis-à-vis other variables. A datum is non-current or out-of-date if its recorded value was true in the past but no longer agrees with the present true value. Finally a datum is accurate if its recorded value agrees with its true value.

In the case of the majority of fisheries data being collected, currency is not an issue as these are single entries recorded and stored that are not modified after storing (unless other types of errors are found). Completeness and consistency can both be trapped very easily by the mechanisms described above. Accuracy in many cases will be trapped but is the most likely of all errors to go undetected.

2.4.2.3 Numbers of errors allowable per unit

The number of allowable errors, depends heavily on the context - for example what is considered to be a unit, the type of error, and how sensitive the subsequent analyses are to errors in the data. In a perfect world, there would be time to resolve all issues relating to anomalous or spurious data. In practice, this is not the case in most fisheries departments.

The number (and types) of errors that may be tolerated varies between users in terms of the effect they have in any subsequent use. Under a policy of zero tolerance of errors, no data that have failed a quantitative range test can be loaded into the live system. This extreme level of quality control might be implemented, for example due to the potential impact of erroneous data on a statistical model used to monitor and manage the fisheries in real time (e.g. for within season TAC monitoring). Range testing eliminates most quantitative errors in the data. Obvious outliers (e.g., orders of magnitude) should not be allowed, but see note above concerning concept of 'flagging.' Redman (1992) estimated that in the US a typical payroll record has a 1% chance of having one or more errors and a typical US billing record as high as 2% - 7% of having errors. These are in many cases regarded as being within acceptable bounds. Primary errors in fisheries data have been set previously at levels in the region of 85% of all records are 95% or more correct. With modern data systems it should be possible to attain a much better level than this.

For the most part error trapping is only capable of detecting and fixing errors made during data entry. There will be a number of errors that are made during the recording phase that it may not be possible to fix, although a proportion of these errors can be flagged and excluded from the data analysis, if appropriate (see methods above).

There are a number of statistical procedures (using the hypergeometric distribution) that, given the sample size (i.e. total number of records) and the probability of errors (taken from a subset of data visually checked against the entered data), can estimate the confidence limits for a particular dataset.

2.4.2.4 Methods used to rectify errors

After potential errors have been flagged in the database, the most common and best recourse for sorting out data problems is to check the entered data against the original hardcopy paper record. If this is not available or an error in the paper record is the source of the problem, a number of options are still open to rectify the error. Values can be compared against past and future values collected for the same data field. It may show that the same value has been entered each day for the field and on one occasion a different value was entered but it was more likely to be the same as previous values. Erroneous or data that have been modified after looking at possible sources of error can also be easily excluded or partially excluded from analysis datasets by using the same set of data flags described earlier.

Flagged data can be held in a temporary 'pending' database while source documents are checked usually using an index system such as pre-numbered log-book sheets, which could be an index generated by a document management system. This means that at any one time, the live database holds only those data that pass range checking and input control. The source of error must be investigated before the data can be transferred into the live database, if necessary, by recourse to the originators of the document. An alternative solution that is commonly used throughout large database systems is that records may be flagged with a code whose value indicates at which particular level any one record failed range checking. Data will be recorded in the '*live*' database but it is then the responsibility of the administrators and users of that database to make some rational decision concerning its usage and applicability for each analysis

conducted, e.g. records where the catch data is flagged as erroneous would not be used for estimating total catch.

2.4.2.5 Policies for reviewing data

The data management section of an RFMO must be tasked with continually checking the validity of data, and must correspond with data originators to answer any discrepancies that appear in the data. This can be a costly and time-consuming task, but its importance cannot be understated. One important consideration is that the origin of official data is often known to only a few national officers. Requests for clarification several years later, when those individuals have moved on, is much less likely to lead to a resolution of the problem than questions raised immediately following submission of the data. If investment in a data management section of an RFMO is not high, a large number of historical records are likely to have low quality reliability, because of the legacy effect of delayed checking.

An essential element to an effective reviewing mechanism is the identification of data correspondents. The STATWG of the ISC recently recommended that data correspondents be identified for each Member. Data correspondents will be responsible for ensuring the quality of data collection and submissions by Members. Data correspondents will constitute the primary contact with whom the ISC will communicate in the event of data related queries.

2.5 Initiatives towards standardised data collection and reporting in the WCPO region

Significant steps have been taken towards the standardisation of catch and effort logsheets within the WCPO region:

- Through SPC/FFA cooperation in the Tuna Fishery Data Collection Committee; and,
- Through the work of the Statistics Working Group of the SCTB.

First meeting of the Data Collection Committee was held in December 1995. At the time, an array of logsheets was used throughout the region. The extent to which the situation complicated the task of data processing by the OFP and the FFA was recognised and as a result standard logsheets were designed and introduced to both the domestic fleets of SPC and FFA member countries and the DWF fleets with which they have access agreements. Subsequent Data Collection Committee meetings have followed (December 1996, December 1998 and December 2000) where an ongoing process of review has continued and standard observer forms, port sampling forms and unloading forms have subsequently been designed; translated versions of logsheets have been made available on the SPC-OFP website in French, Japanese, Korean, Mandarin and Spanish.

A special session of the SCTB Statistics Working Group was held prior to the twelfth meeting of the SCTB in 1998 (Anon., 1999a) where minimum logsheet standards were established. The minimum standards reflect the need to differentiate between data that are essential and data that are desirable. Reviews of logsheets used in the region have continued to ensure conformity with the agreed minimum standards.

Existing regional (SCTB agreed) logsheets include:

Logsheets	Languages	Instructions
Longline	English, French, Japanese, Korean, Mandarin	English, French, Japanese, Mandarin
Pole and line	English, French, Japanese	English, French
Purse seine	English, French, Spanish	English, French, Spanish
Shark longline	English	English

A summary of the status of South Pacific Regional logsheet implementation is included in Anon. (2001). Although implementation amongst FFA and SPC flagged vessels has in the majority of cases been successful, adoption by DWFNs has been limited.

Observer data

Observer data collected for research purposes include primarily species composition of target species, catch data for non-target species, and length data.

A series of forms have been developed for observers aboard longline, pole and line and purse seine vessels. In addition there are a number of general forms completed by observers aboard all vessel types. Each form is accompanied by detailed instructions defining data format and codes as required. All forms include instructions that guide observers through the collection and sampling process with the exception of the longline forms, which provide detailed instructions for form filling only. Existing regional observer data collection forms are listed below:

General Forms	Field data collection instructions
	GEN-1 - Vessel and aircraft sightings and fish transfer log
	GEN-3 - Vessel trip compliance record
	GEN-6 - Pacific regional pollution report

Longline forms	LL-1 - Longline general information
	LL-2 - Longline set information
	LL-3 - Longline haul information
	LL-4 - Longline catch monitoring
	LL-5 - Longline conversion factors

Pole and line forms	PL-1 - Pole and line general information
	PL-2 - Pole and line daily log
	PL-3 - Pole and line catch details

Purse seine forms	PS-1 - Purse seine general information
	PS-2 - Purse seine daily log
	PS-3 - Purse seine set details
	PS-4 - Purse seine length frequency
	PS-5 - Purse seine well loading

No regional manual has been developed combining instructions for collection and form filling with roles and duties of observers, statistical sampling techniques, standard classification codes, conduct of observers, safety at sea etc.

Unloading & Port sampling data

Logsheets and associated guidelines have been developed to harmonise data collection and data recording protocols throughout the region. Similarly, SPC member agencies are encouraged to use the regional logsheets and guidelines when collecting port-sampling data. This ensures standard sampling practices, data collection procedures, and a standardised format for reporting. All forms are accompanied by instructions, with the exception of the *Monthly summary forms for longliners*, as detailed below.

Fishery	**Types of forms**	**Language**
Longline	Unloading Form	English, French (no instructions)
	Port sampling form	English, French (no instructions)
	Monthly summary form	English (no instructions), French (no instructions)
Pole and line	Unloading Form	English
	Port sampling form	English
Purse seine	Unloading Form	English
	Port sampling form	English
	Well unloading form	English
Troll	Port sampling form	English

A detailed port-sampling manual has been developed by SPC-OFP, which provides background information for port samplers explaining why data are collected, how samplers should comport themselves, standard measurements, sampling protocols and data collection procedures and how data should be recorded. The manual places particular focus on purse seine, pole and line and longline vessel port inspection.

2.6 Timely exchange and reporting

Timely reporting of fishery data directly influences the capacity of an RFMO to provide appropriate and timely management advice and disseminate information on the status of the fishery in question. Three contributing factors influence the timely exchange and reporting of fishery information, these include:

- Agreement on the criteria used to allocate responsibility for data reporting;
- Agreement on a framework for data reporting, including reporting schedules and defined lines of communication; and,
- Agreement on a common format for data reporting and information exchange.

2.6.1 Fishery data reporting responsibilities

Although international instruments such as the UNFSA allocate responsibility for fishery data reporting on flag State, areas of uncertainty remain. Amongst others, these relate to circumstances arising from DWF fleet operations under access agreements and joint venture and charter arrangements. At its Eighteenth Session, the CWP revised its existing criteria in an effort to address these uncertainties, as detailed below:

The flag State of the vessel performing the essential part of the fishing operation shall be responsible for the provision of catch and landing data.

Where a foreign flag vessel is fishing in the waters under the national jurisdiction of another State, the flag State of the vessel shall have at all times the responsibility to provide relevant catch and landing data. The only exceptions to this shall be:

> *(a) Where the vessel undertakes fishing under a charter agreement or arrangement to augment the local fishing fleet, and the vessel has become for all practical purposes a local fishing vessel of the host country;*
>
> *(b) Where the vessel undertakes fishing pursuant to a joint venture or similar arrangement in waters under the national jurisdiction of another State and the vessel is operating for all practical purposes as a local vessel, or its operation has become, or is intended to become, an integral part of the economy of the host country.*

In any situation where there is uncertainty as to the application of these criteria, any agreement, charter, joint venture or other similar arrangement shall contain a provision setting out clearly the responsibility for reporting catch and landing data, which shall be reported to the flag State, and, where relevant, to any coastal State in whose waters fishing operations are to take place or competent sub-regional, regional or global fisheries organisation or arrangement.

A number of regional bodies have adopted the standards defined by the CWP including the OFP. It is strongly suggested that the Preparatory Conference consider the definition agreed by the CWP. However, in the context of Commission needs, agreement will need to be reached regarding data reporting responsibilities, particularly those relating to DWFN operations, not least if difficulties of duplication are to

be mitigated. This is of particular importance given the status of data reporting for certain fleets in the WCPO, where coastal states, rather than the flag states, are currently the best or only source for catch and effort logsheet data. For example, the coverage of Korean purse seine vessels by logsheet data compiled by Korea is less than 40% for 1999 (Koh et al., 2002), the most recent year for which coverage is stable, whereas the coverage by logsheet data provided to the OFP by SPC member countries is 98% (Lawson, 2002). This situation for Korean purse seine vessels and other DWFNs may change over the long term, but at least in the short term, it is likely that the Commission will have to rely on data compiled by coastal states.

2.6.2 Schedules for data submission

An important measure to ensure timely data submission is agreement on a framework for data reporting, which might include data specific schedules and reporting protocols. The nature of data collected and its importance with respect to the formulation of management advice and associated measures will generally dictate the regularity with which reporting should take place. Nevertheless, the development of a clearly defined reporting schedule with associated mechanisms to monitor and enforce data submissions should be considered.

Closely associated with the development of a data-reporting schedule should be the allocation of a point of contact responsible for data submissions (See Section 2.4.2.5). The identification of an individual responsible for data reporting is crucial not only for monitoring purposes but also for feedback and review, particularly where discrepancies in reported data are identified.

As discussed in Section 2.4.2.5, the ISC has recently endorsed the use of data correspondents, whilst the OFP have established a system whereby designated contacts are assigned for all countries / territories reporting data. Data handling is monitored using a *Data Registry* database; data submissions are logged and receipt of information is automatically generated and sent to the designated contact by email. The system is reciprocal in that designated contacts are able to access to secure pages of the OFP website and obtain information on the status of data processing, specific to their submissions.

Given the number of States likely to report to the Commission, it will be critical that a reporting framework be established including provision for an appropriate response if discrepancies in data are identified or in the case of delays in data reporting.

2.6.3 Data reporting formats

The range of mechanisms available for data reporting has developed significantly from traditional hard copy formats (e.g. STATLANT forms) to electronic solutions. Considerable emphasis has been recently placed on the use of electronic media for data submission. Electronic reporting formats that are independent of proprietary software have been developed and their use is encouraged by the FAO. The use of FTP sites offers a fast and secure mechanism for exchange of large data sets. These solutions are fast becoming the norm and it will be important for the Commission to consider defining reporting formats which maximise developments in the IT environment whilst acknowledging member State capabilities.

An approach similar to that taken by CCAMLR may offer an effective solution; standard reporting formats are clearly defined both for hardcopy and electronic data reporting. Whilst electronic data reporting is encouraged, mechanisms are in place for hardcopy data reporting and subsequent data entry and processing. In this way, standard formats are ensured whilst sufficient flexibility is maintained in line with

different levels of member states' data handling capacity[3]. This approach is reflected informally by the CCSBT, where it is felt that too prescribed a format for data reporting may have a negative influence on the timeliness and completeness of data reporting. As long as standards are maintained through time in reporting formats and sufficient information ("metadata") accompanies data describing them, in the short term, the benefits of standardised reporting formats may be outweighed by the need for timely reporting (pers. com. Bob Kennedy, CCSBT). A more prescribed standardised format may be more appropriate with regards Commission needs, not least given that the likely volume of Member data submissions will be significantly higher than is the case for the CCSBT.

Alongside the growth in the use of electronic media, significant emphasis has been placed on the development of international standards for describing data. Metadata is *"information about data"* and can include characteristics about the data such as the content, accuracy, reliability and the source. Metadata provides the mechanism to describe data in a consistent form that allows users to gain a uniform understanding of the content and fitness for purpose of datasets. Metadata can accompany a dataset when it is transferred to another computer so that the dataset can be fully understood, and be used effectively. The FAO, through FIDI, are currently developing a global standard for fishery metadata, which will in effect offer a baseline set of common terms and definitions that describe fishery data. Within the WCPO region, the OFP routinely includes metadata when disseminating information; equivalent use of metadata by the Commission would increase the sustainability of electronic data and should therefore be considered by the Commission.

2.7 Summary

The Convention text and the MHLC consultation report present overarching guidelines for data collection, verification and timely exchange and reporting. In addition, clear reference is made to associated standards and obligations presented in Annex I of the UNFSA. In support of this guiding instrument and others, the FAO cooperates with RFMOs, particularly through the CWP, to standardise reporting forms, procedures, definitions, classifications, and other related documentation.

It is strongly recommended that the Commission adopt standard codes and coordinate with FAO and the CWP in their development. Where it is necessary to adopt unstandardised codes in the short term, databases can easily be configured to accept temporary codes for later replacement with standard codes.

In the development of standards applicable within the region the Commission will need to consider the particular situations of developing countries as these countries may not be readily able to implement standards designed in the context of more developed fisheries.

It is essential that the initial system of standards and classifications adopted by the Commission must be capable of meeting immediate data needs and flexible enough to meet those needs which might evolve over time.

Commission participation in the FIGIS programme is recommended as this will offer member States a conduit for meeting international reporting obligations, according to commonly shared data standards.

PrepCon consideration is also recommended in relation to the establishment of a system of review and evaluation of data quality and needs. The rigorous and time-consuming process to achieve full ISO certification for data collection management standards will not likely serve the purpose of the

[3] The CCAMLR *Fishery Data Manual* is published in English, French, Russian and Spanish.This manual describes CCAMLR procedures for collecting, submitting and disseminating catch, effort and biological data for fisheries in the CCAMLR Convention Area. Information is provided on deadlines for data submissions, data requirements for each fishery, data forms and guidelines for their completion, and definitions of data fields and codes. Procedures for collecting and submitting fishery observer data and reports are described in the CCAMLR *Scientific Observers Manual* (http://www.ccamlr.org/pu/e/sc/fish/intro.htm).

Commission. However, a less rigorous procedure that follows the ISO format will provide an opportunity for the PrepCon to fully evaluate the details of sampling requirements in the context of data quality needs.

The specifics of long-term Commission data requirements for scientific purposes have yet to be agreed. Nevertheless, priority fishery data in the context of the PrepCon have been established and these same priority data types are likely to be reflected in Commission data needs, at least in the short to mid term. These data include: annual estimates of catch; catch and effort data (the scale and resolution are yet to be established, although data at the finest scale possible are recommended); and size composition data (length frequency).

Where the Commission requires information in addition to fishery data (e.g. economic and sociological data), it should seek to identify appropriate data to quantify indicators in cooperation with the CWP, which has already taken steps to address these issues.

Although international instruments such as the UNFSA allocate responsibility for fishery data reporting on flag State, areas of uncertainty remain. In the context of Commission needs, consensus will need to be met regarding data reporting responsibilities, particularly those relating to DWFN operations. It is strongly suggested that the Preparatory Conference consider the definition agreed by the CWP.

An additional consideration relates to the status of data reporting for certain fleets in the WCPO, where coastal states, rather than flag states, are currently the best or only source for catch and effort logsheet data. This situation may change over the long term, but at least in the short term, it is likely that the Commission will have to rely on data compiled by coastal states.

Significant steps have been taken towards the standardisation of fishery data collection, compilation and dissemination within the WCPO region through the efforts of the Statistics Working Group of the SCTB and through SPC/FFA cooperation in the Tuna Fishery Data Collection Committee.

Data collection standards developed and implemented within the WCPO region include: catch and effort logsheets; observer data collection forms; and port sampling and unloading forms. The forms have undergone regular review and have been widely implemented by SPC and FFA members and DWFNs active in their respective territorial waters. It is strongly recommended that the Commission consider the logsheets and forms as a baseline from which Commission data collection forms can be developed in the long-term.

The verification of data is essential to ensure that data are accurate, complete and give a true indication of the state or value of factors under consideration. Landings and transhipment records comprise an important source of information with which reported catch data can be verified and validated. Additional sources of data used to verify reported catches, include observer programmes and port sampling programmes. The adoption of standardised data collection forms will facilitate data verification significantly.

Significant Commission investment is recommended in the verification and quality control of data submissions. The Commission should consider the establishment of a framework for data submissions including the identification of data correspondents and the definition of schedules for data reporting. The identification of an individual responsible for data reporting is crucial not only for monitoring purposes but also for feedback and review, particularly where discrepancies in reported data are identified. The adoption of such a framework will facilitate the Commissions capacity to verify and validate data submissions and disseminate accurate and complete data in a timely fashion. This often costly and time-consuming task has high importance.

Standard data quality control approaches are now commonplace in data handling; it is recommended that quality control standards be set which incorporate these mechanisms, including: the double entry method of data capture (where hardcopy data are processed); real time error trapping; and transaction processing,

Considerable emphasis has recently been placed on the use of electronic media for data submission; electronic solutions to data exchange are fast becoming the norm and it will be important for the Commission to consider defining reporting formats which maximise developments in the IT environment whilst acknowledging member State capabilities.

An approach similar to that taken by CCAMLR may offer an effective solution. Whilst electronic data reporting is encouraged, mechanisms are in place for hardcopy data reporting and subsequent data entry and processing. In this way, standard formats are ensured whilst sufficient flexibility is maintained in line with different levels of member states' data handling capacity.

The Commission should consider the inclusion of metadata relating to the exchange of electronic fishery data, which will not only facilitate compatibility with international standards but may also influence the sustainability of data compiled by the Commission.

3 Technical capabilities, security, and data sharing policies

The Convention requires that the Commission collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as well as information from national and international research programmes (Article 5(i)).

In this section we evaluate the technical capabilities, data security, and data-sharing policies of participants and organisations within the region where the types of data of interest to the PrepCon are routinely handled. For contrast with Western and Central Pacific regional organisations, we also evaluate how these matters are handled elsewhere in order to provide an objective assessment of regional standards. In addition we will evaluate the capabilities of specific candidate organisations in the region with respect to the three elements listed above, in an effort to address the feasibility of contracting out interim data services and, conclude with a shortlist of candidate organisations that meet the criteria.

3.1 Data Collection

Options for fishery data collection are discussed in relation to data type in section 2.3. In this section we review some of the mechanisms commonly used to collect fishery data. The accepted mechanism to ensure both harmonised and consistent data collection is through the use of standardised data collection forms and/or formats (e.g. logsheets). These are usually supported by detailed instructions or manuals, which define data collection procedures / sampling protocols and standard classification codes to ensure compatibility, consistency and quality of reported data.

3.1.1 General fishery data collection techniques

3.1.1.1 Logbooks and data forms

The logbook or logsheet is the accepted data collection form used to record catch and effort data. In addition to catch and effort data, vessel logsheets and logbooks can offer a means of collecting additional information in a standardised manner, including information concerning vessel and gear attributes, discards etc. Other commonly used data collection forms include: unloading forms, transhipment forms, port sampling forms, observer forms and data transcription forms.

Standard approaches to the design of data collection forms are discussed in the FAO Handbook on data collection. The key to effective data collection form layout lies in the relative simplicity with which forms can be completed and that data processing methods are reflected in design and layout. Some additional considerations for the design and implementation of data collection forms include:

- The identification of essential and desirable data types through prioritisation of essential data against those data types which can be collected and *de facto,* the extent to which it is practical for additional information to be collected;
- Evaluation of the scale and precision of required data;
- The use of standard terms / classification codes / standard measurements / units etc. which facilitate harmonised data collection and data recording (where appropriate these standards must be defined with international reporting requirements in mind);
- The parallel development of detailed instructions, including statistically valid sampling protocols where appropriate;
- Linguistic requirements of both collection forms and instructions should reflect the needs of those tasked with data collection; and,
- Appropriate mechanisms for review.

With regard to the medium used, data collection forms are designed both in hardcopy format and in electronic form, either as printable copies or as data entry forms which can be uploaded directly into a data management system (database or spreadsheet files). It is becoming increasingly common to record data electronically rather than on paper. For instance, almost all research surveys and observer data are now collected on computers at sea, although there may be an intermediate paper stage if the data are being collected in a wet environment such as on the deck or in the factory. It is still probably the case that most fishing masters will prefer to use paper to collect their data, but the time is fast approaching when we can envisage the use of VMS data to collect some fisheries data.

3.1.1.2 Observer programmes

At the micro-level it is usually extremely useful to have observers on at least some vessels. Observers provide feedback on fishing practices, processing practices and the level and species composition of discards. Care must be taken to try to identify changes in fisher behaviour when an observer is on board. This is very difficult to do (for obvious reasons) but some experimental designs are available, especially from fisheries with good levels of observer coverage.

International observer programmes (e.g. the CCAMLR Observer Scheme) offer some advantages over national observer programmes. The quality of the observations from such programmes may be higher, standards are consistently applied across the entire fleet, and the added transparency increases the confidence that all parties have in the data.

Observer responsibilities have components of collecting scientific information and assuring compliance with regulations. The distribution of tasks among these components affects the observers' relationship with the fishing industry. Some national and international programmes, such as CCAMLR, use observers only to collect data. The Australian programme uses observers to collect scientific data and compliance data related to permits and marine pollution.

In point (e) of Article 28 the Convention text states that:

> *the activities of observers shall include collecting catch data and other scientific data, monitoring the implementation of conservation and management measures adopted by the Commission and reporting of their findings in accordance with procedures to be developed by the Commission;*

The observer data provided to the OFP are checked for data quality both manually prior to data entry and by the data entry and data importing software (Lawson et al. 2002). In observer programmes for which technical support is provided by the OFP, a purse seine and longline debriefing form allows the national observer co-ordinator (or a senior observer) to check each data field systematically and to query the observer as to whether they have followed the correct sampling protocol. The observer database software also screens the data in order to set a number of data quality flags that indicate whether the data can be used for various analyses, such as the estimation of catches of non-target species.

However, an examination of observer samples of the proportion of bigeye in the catch taken by purse seine vessels revealed serious problems with data quality (Lawson, 2002b). Supervisors evaluated the reliability of observers and the results indicate that only 83 out of 151 observers (55 percent) were considered to be reliable. Observer training programmes have since been conducted by the OFP and it is considered that the reliability of port samplers has as a result improved considerably (Tim Lawson, OFP, personal comment).

3.1.1.3 Port sampling programmes

The port sampling data provided to the OFP are checked for data quality both manually before data entry and by the data entry software (Lawson et al. 2002). For example, missing information are flagged; length histograms are generated for each sample to identify falsified data; and floating object sets by purse seiners are checked for the presence of bigeye tuna.

The quality of port sampling data varies among the national programmes. An examination of port samples of the proportion of bigeye in the catch taken by purse seiners revealed serious problems with data quality (Lawson, 2002b). Supervisors evaluated the reliability of port samplers, other than those of the National Marine Fisheries Service and Japan, and the results indicate that only 19 out of 129 port samplers (15 percent) were considered to be reliable.

Significant steps have since been taken by OFP to address this problem; several observer training programmes have been conducted and as a result the capacity of samplers to identify juvenile bigeye tuna in purse seine catches is judged to have improved considerably (Tim Lawson, OFP, personal comment).

3.1.2 Regional and international fishery data collection programmes

We have identified a number of international programmes responsible for the collection, compilation and dissemination of fishery data both within and outside the WCPO region. Table 3.1 provides a brief description of each of the WCPO and other international organisations identified. A discussion follows outlining the data types handled and the mechanisms employed in collation and collection of fishery data. The summary information was compiled on the basis of available literature, supplemented by information collected through telephone interviews and a structured pro-forma. In addition to the information presented here, Lawson (2002) provides the most recent and complete inventory of tuna fishery data collection, compilation and dissemination for nations in the WCPO currently available.[4]

Table 3.1 WCPO and International organisations responsible for fishery data collection and compilation

Organisation	Description
SCTB	The Standing Committee on Tuna and Billfish. The SCTB provides a forum for scientists and others with an interest in the tuna stocks of the western and central Pacific region to meet to discuss scientific issues related to data, research and stock assessment. It was established in 1988, as an advisory body to the Tuna and Billfish Assessment Programme (TBAP), the predecessor to the OFP. Its role was to be purely advisory and consultative, to assist in the conduct of pelagic fisheries research through the provision of expertise, information and technical advice. In 1997 the terms of reference and participation guidelines of the SCTB changed to promote a wider sense of ownership and enhanced scientific collaboration. The SCTB no longer advises SPCs Regional Technical Meeting on Fisheries.
ISC	Interim Scientific Committee. A scientific forum to exchange views on a full range of

[4] The Statistics Working Group (SWG) of the Standing Committee on Tuna and Billfish (SCTB) has the objective of coordinating the collection, compilation and dissemination of tuna fishery data for the WCPO. At its inaugural meeting in June 1998, the SWG agreed to (a) coordinate data collection by reviewing data collection forms currently in use in the region; (b) coordinate data compilation by reviewing the compilation of annual catch statistics, catch and effort data, and length data, on an annual basis; and (c) coordinate data dissemination by reviewing the instances of the dissemination of data on an annual basis. A paper was prepared by the Coordinator of the SWG (Lawson 2002) in order to report on progress with the coordination of the collection, compilation and dissemination of data. We have made no attempt to specifically summarise the content of that paper, but recommend that it be considered as an important information source for the PrepCon in considering the issues of data standards discussed in this paper.

Organisation	Description
	biological and other scientific issues relating to tunas and tuna-like species in the North Pacific Ocean, including status of stocks, data collection, research, and the consideration of future work programmes.
OFP (SPC)	Oceanic Fisheries Programme. A unit of the Secretariat of the Pacific Community, with a mission to provide member countries with the scientific information and advice necessary to rationally manage fisheries exploiting the region's resources of tuna, billfish and related species.
FFA	South Pacific Forum Fisheries Agency. Collects, analyses, evaluates and disseminates information to member countries. The Agency also provides legal, economic and technical advice, information and assistance in the formulation and implementation of the fisheries policies and access agreements.
IATTC	Inter-American Tropical Tuna Commission. An intergovernmental organisation with full scientific secretariat that studies the biology of the tunas and related species of the eastern Pacific Ocean to estimate the effects that fishing and natural factors have on their abundance, recommends appropriate conservation measures to maintain the stocks of fish at levels which will afford maximum sustainable catches, and collects information on compliance with Commission resolutions.
CCSBT	Convention for the Conservation of Southern Bluefin Tuna. An intergovernmental organisation established to ensure, through appropriate management, the conservation and optimum utilisation of southern bluefin tuna.
ICCAT	International Commission for the Conservation of Atlantic Tuna. An intergovernmental organisation established to recommend on the basis of scientific evidence, management measures and resolutions aimed carrying out its objective of maintaining the populations of tuna and tuna-like fishes at levels that will permit maximum sustainable catch.
IOTC	Indian Ocean Tuna Commission. An intergovernmental organisation established under Article XIV of the FAO constitution. It is mandated to manage tuna and tuna-like species in the Indian Ocean and adjacent seas.
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources. An intergovernmental organisation with a mission for the conservation of Antarctic marine living resources with conservation defined to include rational use.

3.1.2.1 Catch and effort data

Within the general region of the WCPO, the SPC-OFP, CCSBT, ISC and IATTC are regional fisheries bodies that maintain commercial fisheries data for tuna fisheries. In all cases, member nations provide catch and landings data to the regional organisation. While the SPC-OFP and IATTC have long-established fisheries database capabilities, the CCSBT and ISC are in the process of developing a comprehensive database and data management system. Of these groups, only IATTC has staff members in the field to collect supplemental catch data. All four organisations collect or receive logbook data but the data do not include all fisheries from some nations or gear types. For example, the SPC-OFP collects logbook data on standard forms from both domestic and foreign fisheries. The logsheet data held by OFP for 1999 cover 47% of the catch of tuna in the WCPO. Excluding the domestic fisheries of Indonesia and the Philippines, which account for 33% of the catch of tuna in the WCPO, logsheet coverage is 68% (Lawson et al., 2002)

In the case of the international organisations reviewed, ICCAT, IOTC and CCAMLR, all three organisations receive catch and effort data from flag states according to standardised reporting formats. In the case of IOTC and CCAMLR, contracting parties are obliged to submit data in a standard format using standard codes in either paper or electronic format. A comprehensive *Fishery Data Submission Manual*, produced in English, French, Russian and Spanish, provides guidelines for data submission including: deadlines for submission, data forms and guidelines for their completion, and standard definitions and codes.

Several WCPO organisations provide co-ordination and review of data-oriented activities. The SCTB co-ordinates data collection, compilation and dissemination according to agreed principles and procedures. While membership in SCTB is open to all interested parties, not all nations fishing in the WCPO are able to participate (for example, in past years, financial difficulties have curtailed participation by Indonesia and the Philippines). The ISC has a primary task to regularly assess and analyse fishery and other relevant information concerning tuna and tuna-like species. Its membership consists of distant water fishing nations.

3.1.2.2 VMS in the region

The potential crosscutting benefits of VMS data for the purposes of fishery data verification should not be overlooked. VMS data can be used both as a means of verifying reported effort data and as a means of monitoring the completeness of data submissions. It is in this context that existing VMS capacity within the WCPO region is discussed.

The FFA has taken a leading role in the development and application of Vessel Monitoring Systems (VMS in the WCPO region. The FFA has convened a series of technical consultations for member states and DWFNs to review and discuss VMS (e.g. FFA 1996). Several nations (including: New Zealand, the People's Republic of China, Papua New Guinea, the USA, Korea, French Polynesia, New Caledonia, Australia, and Japan) have implemented or are evaluating VMS technology.

Under the existing programme any DWF fishing vessel that wishes to apply for a licence to fish in the waters of an FFA Member Country, must first be registered on the VMS Register of Foreign Fishing Vessels maintained by FFA. The VMS Register is distinct from the regional register, also maintained by the FFA. Information required includes basic vessel details (name, call sign, type, operator/charter) and specific information relevant to the transceiver (Automatic Location Communicator, ALC) installed on the vessel (including communication information, certification and installation details).

The FFA system is based on the Inmarsat-C service, which offers comprehensive coverage of the entire WCPO region. In addition, Inmarsat-C offers two-way communications and messaging capabilities, which ensures flexibility with regards potential extensions to VMS (e.g. electronic logbook reporting). A type approval process has been implemented to ensure compatibility of hardware.

FFA maintains VMS information centrally and distributes data to member countries when fishing activity occurs within their respective EEZ. Actual data collected includes: vessel identity, position (latitude and longitude) and a time stamp; course and speed are determined on the basis of this information. The frequency at which data are transmitted is standardised at 6 transmissions per day, although the frequency can be increased and decreased if and when it is deemed necessary.
No VMS transmission is currently required in high seas waters.

With regards to VMS associated with RFMOs the issue of compatibility is of increasing concern.

3.1.2.3 Biological and ecological data

Observer programmes offer an opportunity to obtain scientific data directly from fishing operations. Observer programmes provide important scientific information on target catch, non-target catch (including incidental catch of seabirds, marine mammals and turtles), and the mortality of discards. In the WCPO, both FFA and IATTC operate regional observer programmes. The OFP supports and co-ordinates national observer programmes, and employed full-time observers in the past for deployment in priority fisheries (3 full time staff provide technical support both for observer programmes and port sampling programmes to SPC member States). In addition OFP provides limited financial assistance in support of member State observer programmes. The FFA programme operates under treaty on the US purse seine fleet, achieving about 20% coverage of the vessel days. There is no coverage of the longline or pole and

line fleets. IATTC operates a regional observer programme and co-ordinates with member nations to obtain 100% coverage of vessels larger than 363-mt capacity. The CCSBT has begun planning for observer coverage.

It is important to note that the design of observer sampling programs is far from simple. The statistical qualities of the required parameters are often very poorly defined, and rarely lend themselves to that body of statistical theory that deals with normal distributions. Sampling is typically a three-stage process, with three levels that need to be considered – the vessel (i.e. how many vessels to sample), the haul (how many hauls to sample on a vessel) and within-haul (how many samples to take from any sampled haul). Solutions that have been adopted in other international forums may help to provide guidance, but observer programmes will have to be tailored specifically to the species in question and the particular operating characteristics of the various fleets. Furthermore, the ideal statistical sampling method will only rarely be practical to implement within budgetary and logistical constraints. Therefore we would caution at this stage against any decision being made about the correct level of coverage in terms of vessels to be covered, % of fishing days to be covered, etc.

Effects of fishing on non-target, associated and dependent species (NADs), typically known as bycatch, has assumed increasing importance in international forums. Analysis of fishing impacts on bycatch of finfish, porpoise (dolphins), sea turtles, and sea birds requires objective and scientifically collected data such as obtained by observers. Increasing fishing for tuna near Fish Attracting Devices (FADs) has increased the incidence of bycatch of many species, including some that are threatened or endangered. The “Agreement for the Conservation of Albatrosses and Petrels of the Southern Hemisphere” provides an example of the international attention given to means of reducing impacts of bycatch.

The following summary information is available on observer programmes on vessels fishing for HMS in the Pacific

Organisation	Function
FFA	Develops and co-ordinates regional observer programmes and assists in the development of national observer programmes. Data collected combines operational information including vessel and gear attributes, biological data collected according to defined sampling protocols and environmental data. Compliance information is also collected, although there are no defined formats for compliance data collection.
OFP	Obtains species composition of target species, catch data for non-target species, and length data from national programmes; OFP observer programme co-ordinates with member nations to expand coverage; provides training and processes observer data.
IATTC	IATTC regional programme co-ordinates with national programmes for 100% coverage of vessels with > 363-mt capacity. Detailed observer manual and log sheets ensure standard protocols and collection procedures are followed.

Port sampling programmes offer a means of identifying both species composition and size (length/weight) frequency of landed catches. The IATTC operates an extensive port sampling programme through its field offices; employing standard sampling formats supported by detailed instruction manuals. OFP supports member country territory port sampling initiatives and encourages the use of standard sampling protocols and reporting formats. The ISC Statistics Working Group has recently addressed the issue of size data collection by member countries, encouraging the use of standard protocols; species-specific measurement standards are currently being defined by the ISC’s Species Working Groups.

Outside the region size data collection is mandatory for IOTC contracting parties, whilst although biological data are not collected through port sampling programmes, length frequency data are reported to CCAMLR based on crew samples in the absence of International Scientific Observers.

No regional fishery bodies in the WCPO area conduct operations to obtain fishery-independent data. Some member nations conduct surveys to collect fishery-independent data, which are generally for local use.

Environmental data collection is in the most part restricted to data collected at sea through observer programmes. A range of public domain environmental data are however used, for example the SPC-OFP has access to public domain data which it uses for assessment purposes and shares with member countries / territories.

3.1.2.4 Social and economic data

The Convention is very clear regarding the incorporation of sociological and economic criteria into the design of management measures. This stems primarily from the need to take into account the special requirements of developing States in the Convention Area, particularly small island developing States (Article 5(b)), both in terms of the allocation of allowable levels of catch and effort (Article 10(3)), and inclusion in the scientific process (Article 30(3)).

In terms of data collection activities in support of these socio-economic objectives, however, the Convention mentions only the collection and evaluation of economic and other fisheries-related data and information relevant to the work of the Commission (Article 10(1j)). To give effect to these objectives, the Commission will need to consider what specific information will be needed to support the application of the type of criteria listed in Article 10(3).

The decisions made on the basis of fishery and biological data, stock assessment results, and management policies have direct economic and social ramifications for fishers. Yet the difficulties in obtaining data to assess these effects generally cause economic and social analyses to lag far behind other aspects of fishery science. In the WCPO region, FFA and OFP have made significant strides in obtaining and using social and economic data. The issue of the optimal level of fishing is receiving increasing attention. The OFP has begun a project to integrate the available economic information for the fisheries and markets with the population biology of major tuna species in the western Pacific to provide advice to FFA member countries on optimal (from a bioeconomic point of view) levels of fishing effort.

Research activity	Organisation	Summary of activities
Incorporation of economic information into management scenario modelling	OFP	Integrates the available information on the population biology of major tuna species in the western Pacific with economic information on the fisheries and markets; develops bioeconomic model to assess economic rent and economic benefits to FFA countries
	FFA	Collects and disseminates economic and marketing information to the government and private sector in member countries

The CWP noted the trend for socio-economic data to be increasingly requested for use in fisheries management and has recognised the need for the improved availability of such data. The CWP recognises the need for collaboration between fishery statisticians, economists and managers in determining the data required and the concepts and definitions to be applied to these data (Appendix 6 CWP-18).

Table 3.2 Summary of data types handled by the selected international and regional programmes

	Commercial fishery data	Biological and ecological data	Environmental data	Socio-economic data	Comments
SPC-OFP	✓	✓	✓	✓	Collate flag state reports including aggregated and fine scale catch and effort data. Catch and effort log sheets provided to SPC by member countries and territories, mostly within the EEZ. About 89% coverage from logbook data in SPC area. Some high seas data provided voluntarily. Missing data from some fishing nations. Aggregated (summary logbook) data submitted by DWFNs according to agreed spatial and temporal resolution by gear type. Supplemental data obtained through industry and observer reports if no logbooks provided. Use of standard regional data collection formats encouraged for catch and effort data (log sheets), port sampling data and observer data. Primary source of biological and ecological data are observer reports supplemented by national port sampling initiatives. Bio-economic models formulated on the basis of socio–economic data collected by FFA.
IATTC	✓	✓	✓		Transcribe logbook data and collate flag state reports. Collect and collate port sampling, transhipment, unloading and observer data according to standard formats. Extensive monitoring and analysis of dolphin and other species, recent emphasis on sharks; observer data.
CCSBT	✓			✓	Developing a database for fishery statistics and trade statistics. Ongoing discussions in relation to obtaining consensus from members concerning minimum data standards and the subsequent confidentiality of those data.
CCAMLR	✓	✓	✓		Collate flag state reported catch and effort data at various levels of spatial and temporal aggregation: 'real-time' catch and effort reports, for each 5-day, 10-day or monthly interval during fishing seasons; fine-scale catch, effort and biological data (operational data encouraged); and annual and monthly summaries of catch and effort (STATLANT) data. Collect biological data through scientific observer data and reports. Implement catch documentation scheme. Ecosystem information collected under CEMP.
ISC	✓	✓			A standardised format for data submissions has been agreed by the ISC Statistics Working Group – catch and effort data reported annually including total catch and effort (nationally) and summarised logbook data (nationally) for all fleet segments according to agreed spatial and temporal resolutions. Verification of catch and effort data at source using landings data; observer data; and trade statistics. Length data submissions based on data originating from national sampling programmes – standardised format for sampling and reporting encouraged. Provides for exchange on views on scientific issues for tuna and tuna-like species in the North Pacific.
ICCAT	✓	✓	✓		Catch and effort data submissions according to agreed spatial and temporal resolution by nation, vessel and gear type. ICCAT had been carrying out environmental-related activities including work on associated and independent species and by-catch.
FFA	✓			✓	Position information; regional VMS programme. Regional observer programme Collect socio-economic particularly in relation to licensing and access arrangements for negotiation purposes.
IOTC	✓	✓			Catch and effort data submissions by contracting parties obligatory and non-contracting parties encouraged according to standard spatial and temporal resolutions according to vessel and gear type by

	Commercial fishery data	Biological and ecological data	Environmental data	Socio-economic data	Comments
					nationality. Collection of data on bycatch (NADs) limited as no logbook requirement for bycatch reporting. Formal collection of biological data limited to size data reporting (length / weight data reported monthly by 5x5). Mechanisms for obtaining size data include port-based sampling. Effort data supported through annual submission of vessel and gear characteristics. Trade statistics collected for selected species. Regional tagging programme feasibility study underway.
SCTB	✓	✓	✓		Collate data, based on reports generated by SPC-OFP. Supports initiative for regional data collection standards through SCTB Statistics Working Group.

3.2 Data handling capabilities

Decision making for fisheries policy-making, planning and management relies largely on processed information, not raw data. The MHLC consultation report makes clear reference to the need for agreement on "*how to consolidate logbook and other data for all fleets in a confidential database.*" Further reference is made to the need for a "*data repository system for length-frequency and associated data*." These requirements coupled with responsibilities outlined in Annex I of the UNFSA point to the requirement for regional Database Management System capacity.

Database management systems offer a means of storing data securely, whilst permitting ready access to data for analysis purposes. A fundamental principle is that data should be held in the form in which they were submitted. This allows flexibility in the way data can be processed (e.g. filtered, aggregated, transformed), and ensures all calculations are reproduced from source data incorporating all revisions.

The primary functions of database management systems are:

- To ensure data conform to standard classifications
- To ensure validity of the data;
- To ensure data integrity and internal consistency;
- To secure and maintain primary data;
- To allow easy access to primary data;
- To process the data efficiently as required;
- To allow different data sets to be integrated, thereby increasing their overall utility.

These key functions facilitate data consolidation, integration, verification, analysis, and where necessary provide a mechanism for generating reports and information for dissemination.

In considering the issue of system design and capability, the role played by database developers should be addressed carefully; there are considerable advantages in the development of database management systems in parallel with any planned data collection system, not least with regard to enhanced opportunity for data standardisation and increased potential for data integration.

3.2.1 Database management system architecture

Available information technology is diverse and evolving rapidly; as a consequence it is important to seek the most up-to-date advice before selecting a system. When considering the approach to take for developing a new database management system, the following options are available:

- Taking commercially available software and adapting it to new requirements;
- Piecing together a system with different software components;
- Creating a custom system from scratch.

The advantages and disadvantages vary for each approach and should be weighed carefully before committing resources. The table below summarises some of the strengths and weaknesses of the three approaches.

DBMS design	Strength	Weakness
Adaptation of commercial software	Useful for prototyping purposes: • assists identification of data flows and system components; and, • assists integration process between data collection process and data storage design.	Can have long-term limitations particularly with regard to data collected under large-scale sampling programmes – eventual migration necessary to larger more robust system
Adaptation of existing components	Quick to instigate Comparatively low start-up costs	Significant modification of an existing system may lead to potential conflicts. As a result there may be high maintenance costs associated.
Custom designed systems	Flexible - can be configured to match data collection / sampling methodology closely. Database development itself can contribute to (act as a tool) data collection programme development, where standardisation can be of mutual benefit through standardisation of data collection and data storage	Essential presence and continuing support required of system developers, which can be costly.

In addition to data specific requirements a number of issues will influence the sustainability of system design, including hardware and software and the capacity of personnel to manage the system. In the short term there may be room for exploiting an existing system or combination of systems, although a custom designed system is likely to offer a more viable and sustainable long-term solution.

3.2.2 Hardware

Hardware solutions employed by selected RFMOs are summarised in the table below. All institutions assessed employ client server style configurations. There are considerable advantages to using a client-server type configuration, as employed by the OFP, FFA, IATTC and CCSBT, including: greater potential for expansion, relatively straightforward backup needs and central control of data.

Organisation	Server & Client machines	Upgrade policy
CCSBT	Combined file and database server Compaq 1.25 Gb RAM RAID type HD Broadband internet connection	Informal upgrade policy, predominantly driven by operating system compatibility. The system is 2 years old – server lifespan expected to exceed 5 years and 4 years for client machines.
OFP	Separate Database, Web and Mail servers. Database server specifications include: HP3000 900 MHz; I Gb RAM; Data storage - 6 drives 2 x RAID0, 3 x RAID5, 1 Hot swap	No routine replacement cycle. Upgrades chiefly motivated by software compatibility.

Organisation	Server & Client machines	Upgrade policy
	Client machine minimum specifications include: Pentium 4; 1.7 Ghz processor; 512 Mb RAM; 80 Gb Hard drive. Backup facilities include a 60 Gb supporting tape drive, soon to be upgraded to 840 Gb. The current drive is capable of backing up all existing data.	
FFA	VMS and FFA have separate networks and servers HP 9000 servers 10 x 5Gb HD.	Hardware upgraded when perceived necessary to support programmes.
IATTC	Servers include: database; mail; file; and web. Minimum specification - Pentium processor 512 Mb RAM, Storage 9 Gb Network 10/100 Mb TX Ethernet Numerous client machines with minimum specification – Pentium 400MHz 256 Mb RAM, Storage 20Gb	Flexible hardware standard set to accommodate change. Bi-annual capacity and obsolescence evaluations.

The issue of redundancy is an important one when considering hardware. The capacity to replace individual components should they fail is essential. RAID-style hard disks offer this facility. In the event of complete hardware failure it is important that a contingency plan exists. Comprehensive support contracts are commonly offered when hardware is purchased and may offer an appropriate solution. The CCSBT server is supported by just such a service contract, which offers complete server replacement within two working days in the event of complete system failure.

3.2.2.1 Backup and redundancy

The OFP, FFA, IATTC all maintain regular schedules for database backup. A combination of differential and full server area backups is undertaken on a daily, weekly and monthly basis. Backups are maintained in secure fireproof locations, both on and off site. CCSBT undertakes full server area backups daily and monthly; password protected copies are maintained both on and offsite. No provision has been made for out of country backups: data confidentiality issues were cited as potential stumbling blocks preventing out of country backups by both the OFP and CCSBT. No information was available regarding the ISC's backup policies.

3.2.3 Software

Software choice is integral to the operation of the database, and is reviewed below for WCPO organisations.

3.2.3.1 Operating systems and database software

	Database	Analysis software Embedded controls and processes
CCSBT	**MS SQL Server** For simplicity and flexibility, some links (particularly to the "CODES" table) are maintained through triggers and stored procedures rather than via referential integrity constraints. Date and time stamps used to manage data.	Standard routines including: referential checks, reports and, standard loading routines based on custom queries written in visual basic –using custom query building software (*Quick Query*). No other analysis software bar standard MS products.

	Database	Analysis software Embedded controls and processes
	Do not use public metadata standards although description fields are included for internal database administration purposes.	Any transformation and adjustment to data undertaken in a development version of the database in the first instance.
OFP	**Visual Fox Pro (VFP)** Relational database including administrative databases and metadata: Data registry database; Global reference tables	Custom written VFP routines for: Verification Analysis Data retrieval
CCMALR	**MS SQL Server** In house custom design and development. All major data sets integrated where possible	Off the shelf (MS Office, S-Plus, FORTRAN) and purpose built routines
FFA	**Oracle v 7.3** UNIX operating system Data integrated where possible: Regional vessel register, observer database, people and organisations, vessel activity and catch (US Treaty), violations and prosecutions, Fisheries agreements and licensing.	Custom written query software, designed and maintained by contracted developers.
ISC	Desktop PC database Still under development	No information

3.2.3.2 User interface

	Client interface
CCSBT	Client machines use 3 x MS Windows 2000 Professional, 1 x XP, operating systems. Visual basic interface - Limited for the time being to module associated with data entry Comprehensive data entry interfaces for three modules: • the Tag Recapture module; • the Trade Information Scheme module; and, • the Reference File module. All other data loaded electronically and extracted via SQL queries for other modules.
OFP	Visual Fox Pro (VFP) front-end (MS ACCESS front-ends developed for SPC clients) Comprehensive custom designed data entry system; the system is under continual development, paperless solutions are under investigation including FTP logsheet transfer. Comprehensive post processing query and data retrieval system also written in VFP – 80-90% of queries are pre-written. A professional licence is held by OFP that permits 3rd party software and subset dissemination.
CCMALR	MS Access front end.
FFA	Database front-end – custom written ORACLE VMS front-end – custom programme (*MapTrac*) based on MapInfo
ISC	No information

3.2.3.3 Upgrade policies

	Upgrade policy
CCSBT	Informal upgrade policy Driving force behind upgrades is software compatibility with member States
OFP	No scheduled review Upgrades when necessary, driving force is compatibility. Extensive software testing prior to upgrades incl. patches upgrades
CCMALR	Annual review and upgrade cycle
FFA	Upgrade as and when available
ISC	No information

3.2.4 Personnel

Staffing requirements necessary to maintain a database management system depend greatly on the data types processed, the amount of data received, and the format in which they are made available.

Staffing needs may be high during the early stages of database management system development. Subsequent needs may level out although continued commitment to database management is essential. Essential personnel include a database administrator, a programmer and data entry staff. Outsourcing data entry may be an option, although experience has shown that outsourcing data entry can have negative implications on data quality and may also be regarded as a threat to data security and confidentiality.

OFP	8 permanent staff • 1 x Fisheries Statistician responsible for overall management of the section, liaison with users external to SPC, editing and publication of statistical bulletins, and conducting statistical analyses • 1 x Programmer / Research Officer responsible for maintaining data processing and query interface software, providing technical support for tuna fishery database systems in SPC member countries and territories, and compiling data summaries. • 1 x Research Officer / Analyst responsible for maintaining data processing and query interface software, providing technical support for tuna fishery database systems in SPC member countries and territories, and maintaining the SPC/OFP website. • 1 x Fisheries Database Supervisor is responsible for supervising the processing of data, maintaining data processing software, and compiling data summaries • 4 x Data Entry Technicians responsible for data entry and other secretarial duties, as required. In addition, technical support is provided to national and regional port sampling and observer programmes through the work of 3 further staff members not strictly linked to data handling, but who nevertheless influence the quality if data submissions. These include a port sampling supervisor, an observer supervisor, and a port sampling and observer trainer. IT system management is handled independently of the OFP by the SPC IT unit that handles operating systems and server backup.
FFA	4 permanent staff including a database developer – the bulk of design work and development has been outsourced. A combination of data entry clerks and FFA admin staff manage data processing needs.
ISC	No information – the system is to be managed by the Fishery Agency of Japan
IATTC	IATTC employs 7 permanent IT staff including: • 1 x System manager • 1 x Assistant system manager • 1 x Data administrator doubling as a • 1 x Data administrator • 2 x Programmers • 1 x Graphics/web designer Additional support is available from some 7 data editing and data entry personnel. IATTC are unsure if current staffing levels will be sufficient to support all projects.
CCSBT	Data submissions predominantly take electronic form, although on occasions there is a requirement for data entry (e.g. tagging returns, trade information). Data entry was formerly outsourced but the quality was deemed poor; all data entry is now undertaken by the database manager with assistance from the administrative office. • 1 x database manager responsible for editing and publication of statistical bulletins, supervising the processing of data, maintaining data processing software, compiling data summaries and maintaining the SPC/OFP website. • 1 x administrative officer who occasionally assists with data entry.

There is still some room for increasing the data management workload at OFP without increasing the number of current staff (Tim Lawson, OFP, pers. comm.). However, if, in the long term, there is a major increase in (a) logbook data, (b) port sampling data, (c) observer data and/or (d) implementation of a large-scale tagging programme, then increased staffing may be required. On the other hand, OFP currently has a need for an additional position to conduct statistical analyses related to data management,

including the evaluation of data quality, the estimation of annual catches, and the design of sampling programmes.

Staffing levels associated with data handling at IATTC appear adequate, although it is felt that these should be monitored closely to assess whether research needs can be met sustainably.

3.2.5 Summary

With regard to assessing data handling capacity of candidate organisations within the WCPO region, information insufficient for comment was made available regarding ISC staffing and database capacity. Conversely, available information indicates that OFP could manage data on behalf of the Commission in the short term without an immediate requirement for additional staff, other than a position to conduct statistical analyses related to data management (Tim Lawson, OFP, pers. comm.). If, in the long term, there is a major increase in data compiled on behalf of the Commission, then additional staffing may be required.

In terms of technical capacity (hardware and software associated with the OFP database management system) all indications point to a relatively sophisticated system on a par with systems used elsewhere for the management of regional fishery data. The OFP already compiles fishery data for the entire WCPO region, although data submissions are made on a voluntary basis and as a result are not comprehensive. Notwithstanding this, the types of data handled by OFP reflect the data types likely to be collected on behalf of the Commission.

3.3 Data security provision and policy

The importance of data security and confidentiality policies can not be overstated in the context of a RFMO, and stems from the recognition that data is a resource and as such has a value, whether economic or otherwise. Confidence in RFMO security and confidentiality policies underpins the willingness of member States to submit data.

Security policies address overarching needs relating to the confidentiality of data submitted to RFMOs and must reflect security considerations relevant to both hardcopy and electronic data. Security policies must mitigate against theft of data and hardware; data loss (hardware and software failure, data corruption); and contravention of confidentiality policies. Commonly applied security measures include:

- Restricted access to premises where data are held, whether in electronic or hard copy format.
- Hardware access limited to valid data users, server access limited to database administrators/engineers;
- Integral database system security including username and password protected access to processed and pre-processed data;
- Restricted levels of access to data reflecting user requirements;
- Encrypted and password protected means of data transmission, including FTP sites, CD-ROMs, disks etc.;

In addition, provision must be made for data recovery in the cases of data corruption or loss. Routine backup procedures are essential, including provision for offsite backup. Recently, consideration has also been placed on the importance of developing provisions for so called *doomsday scenarios*, where copies of data are maintained out of country to ensure recovery in the event of serious environmental disaster or political instability (see Section 3.2.2.1).

The table below summarises some of the security policies of fisheries organisations both in and outside the WCPO region.

Organisation	Data security provisions
OFP	The OFP makes specific provision to ensure security and confidentiality of all data submissions *Access to unauthorised users is restricted through:* • Firewall protection • Integral operating system based password and username requirement for access to data. • Automatic system lock with password protection is instigated after 5 minutes • Restricted access to data for authorised users – e.g. scientists only have access to data through the query system (read-only access) • Development system (db command line) access restricted to database developers. *External users:* • SPC Fire wall –logically secure from external attack. • Web access password protected; access restricted to Member nations and OFP personnel. Member nations only have access to their own data sets (one user per nation). • Virus checking software is regularly updated *Physical security:* • All hardcopy data are stored in locked file cabinets in a secure area of SPC. • Offices locked out of hours • Access to hardware (servers restricted to IT personnel (locked room)
ISC	No details available
CCSBT	The CCSBT has recently agreed policies relating to data security. *Electronic data security* • The Database Manager will control the level of access that is allocated to individuals. • Access to the Secretariat's computers will require logging on with a valid user-name and password. Passwords of users will be changed every 60 days. • The Secretariat's computers will have screen savers with password protection. Screen savers will have a "wait" time of less than 10 minutes. • Access to the Secretariat's database will require a valid username and password. Direct access to the database will not be available via the internet. • Any confidential data that is not held on the database (e.g. data files received by the Secretariat prior to being loaded onto the database) will either be stored in a password-protected file, or on an encrypted section of the hard disk that requires a password to be accessed. • Transmission of confidential data via electronic means (e.g. e-mail, disk, CD, FTP) will always use password protected files (e.g. password protected Excel and Zip files), or an e-mail encryption system. • Backups of CCSBT data (e.g. tapes, disks) will be password protected and/or be stored in an external secure environment. *Physical data security* • The Secretariat's office is locked when unattended and is monitored by an electronic security system when the building is closed (e.g. in the evenings). • Physical data (e.g. paper records) of a confidential nature will be kept within the Secretariat's office, or in the company of a Secretariat staff member. • Physical data that are deemed to be highly confidential will be stored in filing cabinets and cupboards that are locked when the office is unattended. • Physical copies of electronic data provided to the Secretariat (e.g. CD's) will be destroyed or returned to the supplier of the data.
IOTC	Procedures for safeguarding records and databases include: • Access to logbook-level information will be restricted to IOTC staff requiring these records for their official duties. Each staff member having access to these records will be required to sign an attestation recognising the restrictions on the use and disclosure of the information. • Logbook records will be kept locked, under the specific responsibility of the Data Manager. These sheets will only be released to authorised IOTC personnel for the purpose of data input, editing or verification. Copies of these records will be authorised only for legitimate purposes and will be subjected to the same restrictions on access and storage as the originals. • Databases will be encrypted to preclude access by unauthorised persons. Full access to the

Organisation	Data security provisions
	database will be restricted to the Data Manager and to senior IOTC staff requiring access to these data for official purposes, under the authority of the Secretary. Staff entrusted with data input, editing and verification will be provided with access to those functions and data sets required for their work.

3.3.1 Physical security

Physical security of data applied by organisations within the region appears comprehensive when compared to policies applied outside the region. The OFP maintains a strict data security policy; servers are maintained in a secure room to which only appointed personnel have access; and user access is restricted to authorised OFP personnel whilst hardcopy data are stored in locked filing cabinets. FFA and CCSBT maintain similar restrictions on physical access.

No information was available regarding the physical data security policies of the ISC.

3.3.2 Electronic data security

Access to electronic data should be controlled to ensure database integrity and confidentiality, but interfere as little as possible with legitimate access. OFP, IATTC, FFA, and CCSBT all demonstrate similar systems ensuring that data are logically secure. These centre upon access restrictions for nominated personnel based on a username and password system that tailors user access based on operational requirements. In this way, development system (database command line) access is restricted to database administrators ensuring database integrity. Access to other OFP users is restricted through a (read-only) query system. All organisations use software-based firewall protection against access by unauthorised external users and an additional layer of security exists, at the user level, through an automated system lock with password protection in the case of temporary absence of valid users.

No information was available on electronic data security associated with the ISC database.

3.4 Data confidentiality and data dissemination

Given the clear requirement for data dissemination, criteria and protocols for data confidentiality will need to be established, which define the framework within which data may be disseminated. These criteria and protocols generally constitute rules-based data confidentiality policies. Where agreement has been reached, confidentiality policies describe the type and resolution of public domain data and actions necessary to gain access to non-public domain data. A number of common conditions surrounding issues of data confidentiality exist.

It is usual, when faced with a data request, for an organisation to be obliged to either seek the data owner/originator's permission or to at least inform them that the data have been supplied, to whom and for what reason.

Most organisations protect the identity of individual vessels, even in requests from Member scientists. The point is usually made that the name of the vessel is not important, that a code is sufficient. Although data may be supplied for scientific work, there are usually strict rules on the application of the data outside of the particular analysis for which it was intended.

Many organisations apply rules that preclude the supply of aggregated data if that aggregation contains fewer than 3 vessels. This is because if one knows which vessels have participated in a fishery, and there are only one or two of them, it is fairly easy to determine where a competitor has been fishing.

Rules-based confidentiality policies are usually defined in an effort to establish procedures for the release of data and generally specify data type and resolution. In certain cases (e.g. CCSBT) the issue of confidentiality is treated on a case-by-case basis. Protocols are defined outlining procedures to be

followed if access to data is requested. Similar procedures are outlined in rules-based confidentiality policies where ad hoc data access is requested, both from Members and non-Members.

The table below includes information relating to data confidentiality policies of organisations both within the WCPO region and outside.

Organisation	Data confidentiality
OFP	The OFP policy on the dissemination of data is identical to the policy that was established by the Standing Committee on Tuna and Billfish at its eleventh meeting in July 1998 (Anon., 1998). Annual catch estimates, by gear type, flag state and year, are considered to be in the public domain. Policies relating to catch and effort agreed at the eleventh meeting of the Standing Committee on Tuna and Billfish (SCTB11). • Catch and effort data grouped by 5° longitude by 5° latitude by month for longline and 1° longitude by 1° latitude by month for surface fisheries, for all fishing nations combined, are considered to be in the public domain. • Catch and effort data grouped by 5° longitude by 5° latitude by month for longline and 1° longitude by 1° latitude by month for surface fisheries, stratified by fishing nation, are available for release at the discretion of the Co-ordinator of the SCTB Statistics Working Group (SWG), for those sources of data which have so authorised the SWG Chairman. For those sources of data that have not authorised the SWG Chairman to release data at his discretion, authorisation for the release of data must be obtained from the sources of the data. • Catch and effort data grouped at a finer level of time-area stratification may be released with authorisation from the sources of the data. • Catch and effort data are released for research purposes only, and to individuals who can be trusted to use the data responsibly. The person requesting the data is required to provide a description of the research project. The data are released only for use in the specified research project and the data must be destroyed upon completion of the research project. However, catch and effort data may be released for general usage, such that the data need not be destroyed, with authorisation from the sources of the data. • The person requesting the data will be asked to provide a report of the results of the research project to the SWG Chairman for subsequent forwarding to the sources of the data. All SPC member countries and territories, except New Zealand, have authorised the OFP Fisheries Statistician to release data at its discretion. Of the non-SPC sources of data held by the OFP, the Forum Fisheries Agency, Japan and Korea require authorisation before their data can be released. Policies relating to length data are the same as those detailed for catch and effort data Observer data - observer reports released to the agency that arranged the placement of the observer (when the agency does not already have a copy of the report) or to the captain and owner of the vessel (if a request is received by the OFP). Otherwise, only summary information for research purposes is released by the OFP.
IATTC	Confidentiality is provided by laws against search and seizure of IATTC records. Detailed data (e.g. logbook or company records) are only released with written permission of the individuals providing the data to the IATTC. Access is provided to summary data, which does not reveal the identify of operations of individual companies or vessels. Catch & effort data summaries on 5x5-quarter resolution are available on request. Coastal state agencies may be provided 1x1- month catch & effort summaries for their EEZs on request. Other formats may be provided on an ad hoc basis by request to and approval of the Director of Investigations: requests for scientific purposes and research collaboration are seldom disapproved. Release of selected data from the observer program is provided for by signature agreement of vessel skippers and owners. This data is available to flagging nations, and to the International Review Panel (IRP) without vessel identification, for purposes of investigating compliance with marine mammal protection.

Organisation	Data confidentiality
	IATTC catch and effort data aggregated by 5° by 5° are made available, if catches by individual vessels cannot be identified in the aggregated data. Data aggregated by 1° by 1° may be released if justified by reasonable use. Raw logbook data may only be released with authorisation from the skipper and the owner. Observer data are confidential, although under certain conditions observer data are provided to the government of the fishing nation in which the vessel is registered. Other research data collected by individual scientists are exchanged with scientists outside IATTC on an ad hoc basis.

IOTC[5]	The IOTC has a defined policy for releasing catch-and-effort and length-frequency data:
	
	• Catch-and-effort and length-frequency data grouped by 5° longitude by 5° latitude by month for longline and 1° longitude by 1° latitude by month for surface fisheries stratified by fishing nation are considered to be in the public domain, provided that the catch of no individual vessel can be identified within a time/area stratum. In cases when an individual vessel can be identified, the data will be aggregated by time, area or flag to preclude such identification, and will then be in the public domain.
	• Catch-and-effort and length-frequency data grouped at a finer level of time-area stratification will only be released with written authorisation from the sources of the data. Each data release will require the specific permission of the Secretary based on the following criteria:
	  o A Working Party will specify the reasons for which the data are required.
	  o Individuals requesting the data are required to provide a description of the research project, including the objectives, methodology and intentions for publication. Prior to publication, the manuscript should be cleared by the Secretary. The data are released only for use in the specified research project and the data must be destroyed upon completion of the project. However, with authorisation from the sources of the data, catch-and-effort and length-frequency data may be released for long-term usage for research purposes, and in such cases the data need not be destroyed.
	  o The identity of individual vessels will be hidden in fine-level data unless the individual requesting this information can justify its necessity.
	  o Both Working Parties and individuals requesting data shall provide a report of the results of the research project to IOTC for subsequent forwarding to the sources of the data.
	
	Data submitted to working parties
	• Data submitted to Working Parties will be retained by the Secretariat or made available for other analyses only with the permission of the source.
	The above rules of confidentiality will apply to all members of Working Parties.

CCAMLR	CCAMLR has a series of rules for access to data. 1. For the preparation of scientific papers for CCAMLR, all scientific data are available but only on request from nominated scientific committee representatives, for specified reasons. All data originators/owners are informed that the data have been supplied. 2. If scientists wish to publish analyses that include CCAMLR data, they must obtain permission of the data owner/originators. 3. For data pertaining to compliance and enforcement, data access is limited to nominated Member officers. These are highly sensitive data, often including commercial information. Therefore, the data are filtered on a need-to-know basis, so that for instance the owners can see all the data whereas importing states can only see quantities (not destination companies, and not origins) of fish. 4. Although haul-by-haul data may be released to CCAMLR Members requesting them, the identity of observers and vessels is protected by the adoption of codes. CCAMLR has recently become concerned about the commercial confidentiality of data available to participants at working groups. This concern has come about because some delegations to scientific working groups bring with them representatives of commercial organisations. The solution has been to apply the same rules as above at working groups. Thus data are only supplied to specific requestors (not made generally available to all participants) for specific work (for instance, in the WCPO context someone conducting an assessment of bigeye would only be given bigeye data, not yellowfin data).

[5] The IOTC policy on data dissemination was modelled on the OFP policy (David Ardill, IOTC, personal comment)

Organisation	Data confidentiality
	The following Rules for Access and Use of CCAMLR Data were adopted by the Eleventh Meeting of the Commission (CCAMLR-XI, paragraph 4.35*): These rules replace those adopted at the Eighth Meeting of the Commission (CCAMLR-VIII, paragraph 64) (a) All data submitted to the CCAMLR Data Centre should be freely available to Members for analysis and preparation of papers for use within the Commission, the Scientific Committee and their subsidiary bodies. (b) The originators/owners of the data should retain control over any use of their unpublished data outside of CCAMLR. (c) Requests to the Secretariat by individual scientists of a Member for access to data in the CCAMLR Data Centre will only be considered if the request has been approved in writing by the Representative to the Scientific Committee (or his nominated deputy) of that Member. The Representative is responsible for informing the individual scientist requesting the data, of the rules governing access to CCAMLR data and for obtaining the requester's agreement to comply with these rules. (d) When Members request access to data for the purpose of undertaking analyses or preparing papers to be considered by future meetings of CCAMLR bodies, they should indicate the reason for the request and the nature of envisaged data analysis. The Secretariat should supply the data and inform the originators/owners of the data of this action, together with the details of the original request. When data are requested for purposes other than consideration by future meetings of CCAMLR bodies, the Secretariat will, in response to a detailed request, supply the data only after permission has been given by the originators/owners of the data. (e) Data contained in papers prepared for meetings of the Commission, the Scientific Committee, and their subsidiary bodies should not be cited or used in the preparation of papers to be published outside of CCAMLR without the permission of the originators/owners of the data. Furthermore, because inclusion of papers in the *Selected Scientific Papers* series or any other of the Commission's or Scientific Committee's publications, constitutes formal publication, written permission to publish papers prepared for meetings of the Commission, Scientific Committee and Working Groups should be obtained from the originators/owners of the data and authors of papers. (f) The following statements should be placed on the cover page of all unpublished working papers and background documents tabled: This paper is presented for consideration by CCAMLR and may contain unpublished data, analyses, and/or conclusions subject to change. Data contained in this paper should not be cited or used for purposes other than the work of the CCAMLR Commission, Scientific Committee, or their subsidiary bodies without the permission of the originators/owners of the data.
ISC	Public domain: Total catch and effort aggregated over entire North Pacific with caveat that some discards in N Pacific not reported. Confidential: Raw data, both commercial and biological contains proprietary information and is therefore considered confidential. Access restricted to contributors and authorised scientists of ISC WGs. Any requests from non-contributing parties, all ISC members and observers will be informed of details of the request and permission solicited from contributors. If species specific data are requested the appropriate WG head will take lead in seeking approval. Access to non-public domain data by contributors for purposes other than stock assessment treated as above. Access rules cannot be changed without agreement of all contributors
CCSBT	Data provided for the CCSBT database will be treated confidentially and will not be released by the Secretariat except where members of the Extended Commission approve the specific data release on a case-by-case basis. Consensus at SAG/ESC meetings and subsequent approval by the Extended Commission is sufficient approval for release of specific data to members of the Extended Commission for the purpose of routine data exchange for the stock assessment and management procedure. This approval will apply until the Extended Commission revises the data confidentiality policy. Release of other data requires case-by-case approval from an exchange of correspondence (including e-

Organisation	Data confidentiality
	mails) between Extended Commission member's nominated contacts. When providing approval to release specific data, members of the Extended Commission can specify that the particular data does not require their re-approval for future releases by the Secretariat. In these situations, members of the Extended Commission must also specify the groups of people (e.g. public, Extended Commission members) to whom the Secretariat may release the data without requiring case-by-case re-approval. The Secretariat will maintain a list of data sets (and associated groups of people) that are approved for release without requiring case-by-case re-approval. The list will be provided to members of the Extended Commission and members of the Extended Commission have the right to revise the approvals that they have given.

3.5 Summary

In considering the required capabilities of organizations within the WCPO region to meet the Commission's interim data management needs, three possible candidate organizations are identified as currently handling equivalent data to that likely be required by the Commission: SPC-OFP, FFA, and ISC, as summarized in Table 3.2. A commercial consulting company could undertake interim data needs for the Commission. However, the development time and equipment necessary make such consultants less time- and cost-effective than the candidate organizations considered.

Priority data requirements of the Commission in the short- to mid-term are likely to comprise fishery and biological data, including: annual catch estimates; catch and effort data, and biological information, specifically length frequency data. Data sources are likely to include flag state reported catch estimates, catch and effort data submitted by flag states and coastal states, and observer data and port sampling data.

Given these interim priorities, FFA's limited management of catch and effort and biological data limits its comparative strengths as a candidate for the provision of interim data management services to the Commission. FFA handles both technical and economic data which although likely to be important aspects of the long-term data needs of the Commission are unlikely to be regarded as a priority, in the context of scientific data needs in the short to mid-term. Nevertheless, FFA capacity and expertise in relation to a future regional vessel register and regional VMS should not be overlooked, particularly in the context of the Commissions MCS needs. Crosscutting benefits associated with the implementation of a comprehensive regional vessel register and regional VMS will undoubtedly influence the Commissions' capacity to monitor stock status and fishing effort more effectively in the long-term.

Both ISC and OFP manage data equivalent to those likely to be of priority to the Commission. The ISC compiles both fishery (annual catch and catch and effort data) and length frequency data for the North Pacific, with the exception of longline and purse seine data that are compiled for the entire Pacific[6]. The OFP compiles data for the entire WCPO region, including fine-scale (operational) data, submitted by coastal states for domestic and DWF fleets operating in their respective territorial waters.

OFP and ISC both compile length frequency data; mechanisms for the integration of OFP length frequency data into the ISC database have been established. In addition to length frequency data, obtained through submissions from national port sampling programmes, the OFP also compiles data collected by national and regional observer programmes, which includes both operational (vessel and gear attributes and detailed catch and effort data) and biological data.

With regard to data handling capacity, limited information was available describing ISC technical capacity. Although details describing data collection and reporting standards and proposed data fields to be applied

[6] Amendments are planned relating to future fishery data submissions on the basis of sub-areas; appropriate spatial resolutions are to be proposed by the ISC Species Working Groups based on stock areas of major tuna species and billfish (ISC, 2002).

in a data management system were made available, no specific information relating to associated technical capacity (hardware, software, human resources) was available, preventing further assessment of capacity.

A significant body of information was available describing OFP technical capacity. The hardware used by the OFP is equivalent to that employed by other RFMOs handling similar volumes of data. OFP has particular strengths in the use of distinct file, mail and web servers, a forthcoming upgrade in data backup capacity, and the implementation of a minimum standards policy for client machines.

The use by OFP of a client server style configuration is reflected in all other data management systems reviewed, and indicates the significant benefits of such a configuration, including: increased capacity for expansion; central control of data (increasing security and database integrity) and relatively straightforward provision for system backup.

The operating system employed by OFP offers integral security features and associated benefits to data confidentiality. The database software used is MS Visual Fox Pro (VFP), regarded as a powerful database engine. Notwithstanding this, the conceptual design of the database could be relatively easily transferred to another system in response to the establishment of a recognized international benchmark.

At the client end all graphical interfaces are custom written in VFP, complimented by a suite of comprehensive, post processing, error checking routines. Double entry of data is undertaken ensuring the quality of hard-copy data processing. An estimated 80-90% of queries have been pre-written which account for all standard data requests and reporting needs. The query and data retrieval system is maintained in isolation (read-only) from the actual database, ensuring database integrity.

The data management system itself is integrated as far as possible and includes a global reference table and data registry database permitting real-time monitoring and evaluation of data submissions and data processing.

A professional license is held by OFP for VFP that permits third party dissemination of software and data sub-sets, facilitating data dissemination. All published datasets are accompanied by metadata, increasing data utility and ensuring compatibility.

If the OFP were to take on the role of interim data management on behalf of the Commission, significant modifications to hardware and software are unlikely. Computer memory is now relatively cheap, and therefore could easily be added to existing hardware, although in the short- to mid-term this is unlikely to be necessary. Similarly, the database software employed by OFP is adequate for the task of interim data management and could be transferred to a different system with relative ease if international standards call for this in the future. Were this to be the case, significant effort would be required for re-writing data quality control and data interrogation queries. The planned up-grade of back-up hardware is more than capable of handling likely increases in data volume.

The implementation of interim Commission data management needs is unlikely to significantly increase OFP staff workload, given that the majority of data are already handled by the OFP. In terms of technical personnel there is still some room for increasing the data management workload at OFP without increasing the number of current staff (Tim Lawson, OFP, pers. comm.). Data types to be handled are unlikely to differ significantly especially the majority of data standards recommended for the interim mirror those already applied by the OFP.

However, if a major increase in (a) logbook data, (b) port sampling data, (c) observer data and/or (d) implementation of a large-scale tagging programme occurred in the long term, then increased staffing may be required. OFP currently has a need for an additional position to conduct statistical analyses related to data management, including the evaluation of data quality, the estimation of annual catches, and the design of sampling programmes.

4 References

Anonymous. 1998. Report of the Eleventh Meeting of the Standing Committee on Tuna and Billfish, 28 May – 6 June 1998, Honolulu, Hawaii, United States of America. Secretariat of the Pacific Community, Noumea, New Caledonia. 108p. http://www.spc.org.nc/oceanfish/Docs/SCTB11.pdf

Anonymous. 1999. Report of the Third Meeting of the Tuna Fishery Data Collection Forms Committee, 9–10 December 1998, Brisbane, Queensland, Australia. Secretariat of the Pacific Community, Noumea, New Caledonia, and Forum Fisheries Agency, Honiara, Solomon Islands. 84p. http://www.spc.org.nc/oceanfish/Docs/FC_1998.pdf

Anonymous. 2001. Report of the Fourth Meeting of the Tuna Fishery Data Collection Committee, 6–8 December 2000, Brisbane, Queensland, Australia. Secretariat of the Pacific Community, Noumea, New Caledonia, and Forum Fisheries Agency, Honiara, Solomon Islands.

CCAMLR. 1999. Fishery Data Manual. CCAMLR, Hobart, Australia.

Everett, E., M.G. Hinton & W.H. Bayliff. 1991. Procedures for Collection and Handling of Tuna Fishery Data by Field Station Personnel. Revision C, January 1991. Inter-American Tropical Tuna Commission, La Jolla, California, United States of America. 46p.

FAO. 1999a. Guidelines for the Routine Collection of Capture Fishery Data. Prepared at the FAO/DANIDA Expert Consultation, Bangkok, Thailand, 18-30 May 1998. FAO Fisheries Technical Paper. No. 382. Rome, FAO.

FAO. 1999b. Legal Aspects of the Collection of Fisheries Data, FAO Fisheries Circular No. 953. Rome, FAO.

FAO. 1999c. Report of the eighteenth session of the Coordinating Working Party on Fishery Statistics. Luxembourg, Grand Duchy, 6-9 July 1999. FAO Fisheries Report No. 608. Rome, FAO. 1999. 62p.

FAO. 2000. Satellite-based vessel monitoring systems international legal aspects & developments in state practice. FAO Legal Papers Online #7. http://www.fao.org/legal/Prs-OL/vms7.pdf

FAO. 2001. Report of the nineteenth session of the Coordinating Working Party on Fishery Statistics. FAO Fisheries Report No. 656. Rome, 10-13 July 2001. 91p.

FFA. 1996. 6th Technical Consultation on Fishing Monitoring Systems. FFA Report #96/31.

Koh, J., D. Moon & D. An. 2002. National tuna fisheries report in 2002, Republic of Korea. Working Paper NFR–10. Fifteenth Meeting of the Standing Committee on Tuna and Billfish, 22–27 July 2002, Honolulu, Hawaii, United States of America. National Fisheries Research and Development Institute, Busan, Korea. 4p.

ISC 2002. Report of Statistics Working Group. Third Meeting of the Interim Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Nagasaki, Japan, January 2002.

Lawson, T. A. 2001. Observer data held by the Oceanic Fisheries Programme covering tuna fishery bycatches in the western and central Pacific Ocean. Internal Report No. 45. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia. 40p.

Lawson T. 2002. Status of data collection, compilation and dissemination. SCTB15 Working Paper SWG-1. Hawaii, July 2002.

Lawson, T., P. Williams, C. Millar and E. Schneiter. 2002. Data requirements of the SPC Oceanic Fisheries Programme and status of data. Oceanic Fisheries Programme Internal Report No. 47.

Miyake, M. 1990. Field Manual for Statistics and Sampling of Atlantic Tunas and Tuna-Like Fishes. Third Edition. International Commission for the Conservation of Atlantic Tunas, Madrid, Spain. 184p.

Williams P.G. 2002. Current status of data available from the Indonesian and Philippines domestic tuna fisheries. SCTB15 Working Paper SWG-7. Hawaii, July 2002.

5 Figures

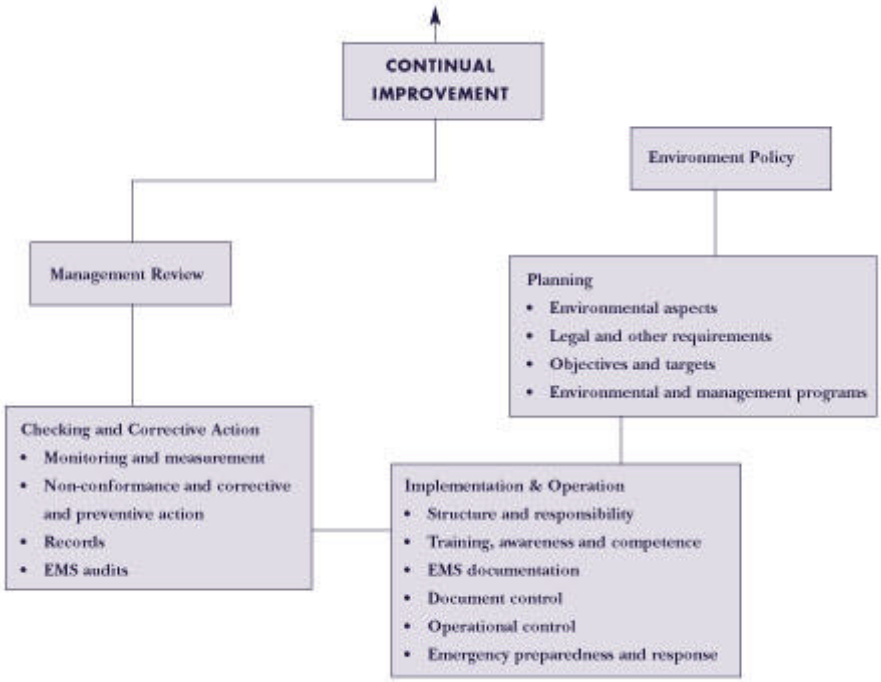

Figure 2.1 Best Practice Management. From: AS/NZS ISO 14001 (Int). (1995). Environmental management systems; Specifications with guidance for use.

6 List of Organisations Contacted

FAO – Fisheries Department (Marine Resources Service)	Jacek Majkowski	Fishery Resources Officer
FAO – Fisheries Department Fishery Information Data and Statistics Unit	Marc Taconet	FIGIS Officer
Commission for the Conservation of Southern Bluefin Tuna	Robert Kennedy	Data Manager
Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)	David Ramm	Data Manager
Inter-American Tropical Tuna Commission (IATTC)	Robin Allen	Director
	Michael Hinton	Senior Scientist
National Marine Fisheries Service - Southwest Fisheries Science Center	Gary Sakagawa	Senior Scientist for Highly Migratory Species
Forum Fisheries Agency	Les Clark	Fisheries Management Advisor
(FFA)	Joel Opnai	Fisheries Management Advisor
	Norman Kapun	Database Manager
	Andrew Richards	Manager MCS
National Fisheries Research and Development Institute (Korea)	Dae-YeonMoon	Distant Water Fisheries Resources Division
National Research Institute of Far Seas Fisheries (Japan)	Harumi Yamada	
	Yuji Uozumi	Chairman ISC Statistics Working Group
National Fisheries Authority (Papua New Guinea)	Ludwig Kumoru	Fisheries Manager – Tuna
	Anthony Lewis	Managing Director
Ministry of Marine Resources (Cook Islands)	Joshua Mitchel	Director - Policy and Resource Management
Ministry of Agriculture, Forestry and Fisheries (Samoa)	Dan Su'a	
Secretariat of the Pacific Community - Offshore Fisheries Programme	John Hampton	Principal Fisheries Scientist
	Peter Williams	Fisheries Database Manager
	Timothy Lawson	Principal Fisheries Scientist (Statistics)

WCPFC Preparatory Conference
Third session
Manila, Philippines
18 – 23 November 2002

WCPFC/PrepCon/WP.10/Corr.1
15 November 2002

REVIEW OF DATA STANDARDS, TECHNICAL CAPABILITIES AND DATA SHARING POLICIES FOR THE WESTERN AND CENTRAL PACIFIC REGION

Corrigendum

1. Page 17:

Delete the words "Existing regional (SCTB agreed) logsheets include:" and substitute the following text:

"The Data Collection Committee (DCC) logsheets include:"

2. Page 17:

Delete the words "Existing regional observer data collection forms are listed below:" and substitute the following text:

"The DCC observer data collection forms are listed below:"

3. Page 35:

Delete the words "These include a port sampling supervisor, an observer supervisor, and a port sampling and observer trainer." and substitute the following text:

"These include a port sampling and observer supervisor, a port sampling and observer trainer and a fisheries monitoring supervisor."

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PREPARATORY CONFERENCE FOR THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC
Third session
Manila, Philippines
18 – 23 November 2002

WCPFC/PrepCon/WP.11
11 November 2002

PREPARATORY CONFERENCE ORGANIZATIONAL FUND AND PREPARATORY CONFERENCE SECRETARIAT

Report of the Secretariat

1. In its decision of 28 April 2001 relating to arrangements for future sessions of the Preparatory Conference and for a Preparatory Conference Secretariat (WCPFC/PrepCon/8), the Preparatory Conference agreed, *inter alia*, to establish a Preparatory Conference Organizational Fund (PCOF), to be financed through voluntary contributions or funding in kind, and to establish a Preparatory Conference Secretariat, consisting of a head and such advisers as the Chairman considers necessary, to service future meetings of the Preparatory Conference.

2. At the second session of the Conference, in February 2002, participants were provided with a report on the status of the PCOF and the practical arrangements that had been made to administer the fund as well as on the arrangements that had been made with respect to the Preparatory Conference Secretariat (WCPFC/PrepCon/WP.5). The present report updates the information contained in the previous report. The information contained herein is up to date to 31 October 2002.

I. PREPARATORY CONFERENCE ORGANIZATIONAL FUND

3. The PCOF was established in July 2001. In accordance with paragraph 2 of document WCPFC/PrepCon/8, the PCOF is administered by the Director of the South Pacific Forum Fisheries Agency and may be used to offset the following costs:

(a) In-country conference costs (where sessions hosted by a developing country);

(b) Chairman's travel and associated costs;

(c) Preparatory Conference Secretariat travel and associated costs;

(d) appropriate retainer fees, consultancy fees and miscellaneous administrative expenses.

4. In accordance with paragraph 2 of document WCPFC/PrepCon/8, the Chairman of the Preparatory Conference and the Director of the South Pacific Forum Fisheries Agency were requested to develop guidelines for the administration of the PCOF, to be applied on a provisional basis pending approval of the Conference. The draft guidelines were adopted, with minor amendments, at the second session of the Preparatory Conference and are contained in document WCPFC/PrepCon/16, Annex II.

5. As at 31 October 2002, donations to the PCOF had been made by the Governments of Australia, China, New Caledonia, New Zealand, Papua New Guinea, Chinese Taipei and the United States. In respect of the second session, an additional contribution direct to the Government of Papua New Guinea had also been made by the Government of the Republic of Korea.

6. In addition to its donation to the PCOF, the Government of the United States made a further special contribution of US$ 40,000 towards the cost of convening the first meeting of the Scientific Coordinating Group (SCG) in July 2002. Since this contribution was not to be limited to the purposes specified in WCPFC/PrepCon/8, but was to be used to offset the costs of participation in the SCG by developing States and territories, the money was treated as a special purpose contribution and disbursed accordingly.

7. The status of the PCOF as at 31 October 2002 is summarized in the annex to the present document. Based on experience to date, it is estimated that the cost of each session of the Preparatory Conference (including intersessional work (Secretariat time, consultancies etc.) and full costing of in-country conference costs) is in the region of US$ 125,000 – 150,000. Bearing in mind the likely need for further detailed technical reports and studies as a result of ongoing deliberations within the working groups, it is unlikely that this estimate will decrease in future. This indicates that additional contributions would be required if the Conference is to continue its work beyond a fourth session and that an ongoing commitment to fund the work of the Preparatory Conference is called for.

II. PREPARATORY CONFERENCE SECRETARIAT

8. The Preparatory Conference also decided to establish a Preparatory Conference Secretariat to service future meetings of the Preparatory Conference. (WCPFC/PrepCon/8, para. 5). It was agreed that the Secretariat would consist of a Head and such technical advisers as the Chairman considers necessary, having due regard to the need for economy and efficiency. In accordance with paragraph 6 of WCPFC/PrepCon/8 the Chairman was requested to identify and enlist the services of appropriate individuals with the necessary expertise, integrity and impartiality to form the Preparatory Conference Secretariat. The functions of the Preparatory Conference Secretariat would be as follows:

(a) Preparation of background papers, documents and reports as required;

(b) Maintaining the official records of the Preparatory Conference;

(c) Assisting the Chairman and other officers in all tasks to facilitate Preparatory Conference outcomes;

(d) Transmission of the official communications of the Preparatory Conference;

(e) Organizational work and liaison with host governments for future sessions of the Preparatory Conference.

In carrying out its functions, the Preparatory Conference Secretariat would consult, as necessary, with other experts and regional and international organizations.

9. In accordance with the above decision of the Conference, in July 2001, the Chairman appointed Michael W. Lodge as Head of the Preparatory Conference Secretariat for a period commencing one month after the conclusion of the first session of the Preparatory Conference and concluding one month after the second session of the Preparatory Conference. The terms of this appointment were set out in a letter of appointment drawn up by the Chairman after consultation with the governments which contributed initially to the PCOF. The arrangements for the appointment of the Chairman were set out in a note dated 30 November 2001 also drawn up after consultation with the governments which contributed initially to the PCOF for the purpose of recording certain understandings regarding the appointment.

10. At the second session, after taking note of the existing arrangements, participants noted the need to further progress the work of the Preparatory Conference, in particular through the employment of consultants, and noted that additional resources might be allocated from the fund for this purpose. With respect to the level of compensation to be provided to the Chairman and Head of the Secretariat for their services, the Conference agreed to request a small group, comprising the representatives of Australia, Canada, China, Cook Islands and Papua New Guinea to develop intersessionally appropriate guidelines and scales. As a result of those discussions, revised arrangements, set out in a letter from the Head of the Australian delegation, were concluded with the Chairman and with Mr Lodge in July 2002.

11. Since July 2001, the work of the Preparatory Conference Secretariat has been carried out by the Head of the Secretariat, in consultation with the Chairman and through the use of consultants for specific technical tasks. From time to time, valuable additional assistance has been provided by individuals participating in the Preparatory Conference and by delegations.
The main tasks carried out by the Secretariat since July 2001 include:

(a) Establishment of the website for the Preparatory Conference, www.ocean-affairs.com;

(b) Establishment and maintenance of an electronic mailing list;

(c) Provision of information to participants through the website and electronic mailing list;

(d) Liaison with host governments;

(e) Negotiation of administrative guidelines with the Director of the Forum Fisheries Agency;

(f) Circulation of requests for contributions to the Preparatory Conference Organizational Fund and necessary follow-up;

(g) Follow-up on work requested by the working groups of the Conference, including providing technical reports and studies;

(h) Preparation of terms of reference for studies requested by the working groups, identification of consultants and negotiation of consultancy contracts;

(i) Ongoing supervision of consultants;

(j) Drafting of meeting papers for sessions of the Conference;

(k) *Ad hoc* consultations with delegations.

12. Subject to the constraints that are necessarily imposed by the use of a part-time Secretariat operating on an interim basis, it is considered that the existing arrangements are sufficiently flexible to meet the present needs of the Preparatory Conference. However, it should be noted that the present arrangements may not be adequate to meet the demands of the process as the Preparatory Conference continues, particularly once it becomes necessary in due course to make practical arrangements for the establishment of the Commission and the entry into force of the Convention. This matter is likely to become more urgent once a decision on the location of the headquarters of the Commission is taken. At that point, the demands on the Secretariat are likely to increase substantially, although there may well be the possibility of cooperation with the host government to alleviate such pressures. Until the decision on the headquarters is taken, however, pressures on the Secretariat will continue to increase, with no obvious solution. Accordingly, the Conference may wish to keep under review the way in which the arrangements for secretariat support to the process have operated in practice and to consider how best to strengthen the Secretariat as the Preparatory Conference continues.

Recommendations

13. The Preparatory Conference is invited to:

(a) express its appreciation to those participating governments that have contributed to the PCOF or otherwise contributed financially to the Preparatory Conference;

(b) invite those participants that have not already done so, as well as to intergovernmental organizations and agencies, national institutions, non-governmental organizations and international financial institutions to make voluntary contributions to the Preparatory Conference Organizational Fund.

(c) note the status of the Fund as at 31 October 2002 (Annex);

(d) note the existing arrangements with respect to the Preparatory Conference Secretariat;

(e) provide such further direction with respect to the practical arrangements for a Preparatory Conference Secretariat as may be necessary;

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Annex I

Status of Preparatory Conference Organizational Fund as at 31 October 2002

GENERAL PURPOSE FUND	USD	USD
A. Contributions received (net) *		
Australia	51,440.00	
China	29,980.00	
New Zealand	89,880.00	
New Caledonia	8,994.00	
Papua New Guinea	26,154.34	
Chinese Taipei	20,000.00	
United States of America	143,000.00	
B. Other income		
Interest	1,627.29	
Total receipts	**371,077.63**	**371,077.63**
C. Disbursements		
*(a) In-country conference costs *****	51,394.42	
(b) Chairman's travel and associated costs	5,723.90	
(c) Secretariat travel and associated costs	24,001.50	
(d) Retainers, consultancy fees and miscellaneous administrative expenses		
(i) retainers and honoraria	36,068.65	
(ii) consultancy fees, miscellaneous administrative expenses	56,995.83	
(e) FFA management charges	13,901.88	
(f) Other costs	195.66	
Total disbursements	**188,241.84**	**188,241.84**
D. Fund balance		**182,835.79**

SPECIAL PURPOSE FUND	USD	USD
A. Contributions received		
United States of America	40,000.00	
B. Other income		
Interest	Nil	
Total receipts	**40,000.00**	**40,000.00**
C. Disbursements		
SCG, July 2002, costs (travel, per diems of participants and secretariat)	40,756.11	
Total disbursements	**40,756.11**	**40,756.11**
D. Fund balance		**(756.11)**

Notes:

* A contribution of USD 50,000 towards the costs of the second session of the Conference was made by the Republic of Korea direct to the Government of Papua New Guinea.

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PREPARATORY CONFERENCE FOR THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC
Fourth session
Nadi, Fiji Islands
5 – 9 May 2003

WCPFC/PrepCon/WP.11/Rev.1
28 April 2003

PREPARATORY CONFERENCE ORGANIZATIONAL FUND AND PREPARATORY CONFERENCE SECRETARIAT

Report of the Secretariat

1. In its decision of 28 April 2001 relating to arrangements for future sessions of the Preparatory Conference and for a Preparatory Conference Secretariat (WCPFC/PrepCon/8), the Preparatory Conference agreed, *inter alia*, to establish a Preparatory Conference Organizational Fund (PCOF), to be financed through voluntary contributions or funding in kind, and to establish a Preparatory Conference Secretariat, consisting of a head and such advisers as the Chairman considers necessary, to service future meetings of the Preparatory Conference.

2. At the third session of the Conference, in November 2003, participants were provided with a report on the status of the PCOF and the practical arrangements that had been made to administer the fund as well as on the arrangements that had been made with respect to the Preparatory Conference Secretariat (WCPFC/PrepCon/WP.11). The present report updates the information contained in the previous report.

I. PREPARATORY CONFERENCE ORGANIZATIONAL FUND

3. The PCOF was established in July 2001. In accordance with paragraph 2 of document WCPFC/PrepCon/8, the PCOF is administered by the Director of the South Pacific Forum Fisheries Agency and may be used to offset the following costs:

(a) In-country conference costs (where sessions hosted by a developing country);

(b) Chairman's travel and associated costs;

(c) Preparatory Conference Secretariat travel and associated costs;

(d) appropriate retainer fees, consultancy fees and miscellaneous administrative expenses.

4. In accordance with paragraph 2 of document WCPFC/PrepCon/8, the Chairman of the Preparatory Conference and the Director of the South Pacific Forum Fisheries Agency were requested to develop guidelines for the administration of the PCOF, to be applied on a provisional basis pending approval of the Conference. The draft guidelines were adopted, with minor amendments, at the second session of the Preparatory Conference and are contained in document WCPFC/PrepCon/16, Annex II.

5. As at 31 December 2002, donations to the PCOF had been made by the Governments of Australia, China, New Caledonia, New Zealand, Papua New Guinea, Republic of Korea, Chinese

Taipei and the United States. In respect of the second session, an additional contribution direct to the Government of Papua New Guinea had also been made by the Government of the Republic of Korea. It is understood that a commitment has been made by Chinese Taipei to make a further contribution to the Fund in 2003.

6. In addition to its donation to the PCOF, the Government of the United States made a further special contribution of US$ 40,000 towards the cost of convening the first meeting of the Scientific Coordinating Group (SCG) in July 2002. Since this contribution was not to be limited to the purposes specified in WCPFC/PrepCon/8, but was to be used to offset the costs of participation in the SCG by developing States and territories, the money was treated as an *ad hoc* special purpose contribution and disbursed accordingly.

7. The status of the PCOF as at 31 December 2002 is summarized in the annex to the present document. For 2003 to date, an additional amount of approximately $20,000 has been expended, primarily in discharge of expenses pending from PrepCon III.

8. Based on experience to date, it is estimated that the full cost of each session of the Preparatory Conference (including intersessional work (Secretariat time, consultancies etc.) and full costing of in-country conference costs) is in the region of US$ 100,000. Bearing in mind the likely need for further detailed technical reports and studies as a result of ongoing deliberations within the working groups, it is unlikely that this estimate will decrease in future. This indicates that additional contributions would be required if the Conference is to continue its work beyond a fifth session and that an ongoing commitment to fund the work of the Preparatory Conference is called for.

II. AUDIT

9. In accordance with the guidelines for the administration of the PCOF, the Fund was audited in March 2003 by the auditors for the Forum Fisheries Agency. The audit report and financial statement for the period ended 31 December 2002 will be made available to all delegations at PrepCon IV.

III. FUNDING OF PARTICIPATION IN THE SCIENTIFIC COORDINATING GROUP

10. As noted in paragraph 6 (above), a special contribution of US$ 40,000 was made by the United States towards the cost of convening the first meeting of the SCG in July 2002. The existence of the SCG was not foreseen in the resolution establishing the PCOF, and accordingly, that resolution does not allow the use of the PCOF to support developing country participation in the SCG. For that reason, and as a matter of practical necessity, the contribution by the United States was treated as an *ad hoc* special purpose contribution and disbursed accordingly.

11. It will be recalled that PrepCon III decided to convene a second meeting of the SCG in July 2003, which will be held, once again, back to back with the annual meeting of the Standing Committee on Tuna and Billfish. Unless a further special contribution is made, or the Conference decides to amend the resolution establishing the PCOF, it should be noted that there is at present no independent source of funding for the participation of developing States and territories in SCG2. Further, although it had been envisaged that savings may be made by holding SCG meetings in conjunction with meetings of the Standing Committee, it is understood that no source of funding exists for the participation of developing States and territories in Standing Committee.

12. The Conference may wish to provide direction on this issue. It should be noted that, should the Conference decide to amend the resolution establishing the PCOF to enable the Secretariat to directly support the participation of developing States and territories in SCG, there would still be a need for additional contributions. It may also be noted that this option would also create an additional, and significant, administrative burden on the Secretariat.

IV. PREPARATORY CONFERENCE SECRETARIAT

13. The Preparatory Conference also decided to establish a Preparatory Conference Secretariat to service future meetings of the Preparatory Conference. (WCPFC/PrepCon/8, para. 5). It was agreed that the Secretariat would consist of a Head and such technical advisers as the Chairman considers necessary, having due regard to the need for economy and efficiency. In accordance with paragraph 6 of WCPFC/PrepCon/8 the Chairman was requested to identify and enlist the services of appropriate individuals with the necessary expertise, integrity and impartiality to form the Preparatory Conference Secretariat. The functions of the Preparatory Conference Secretariat would be as follows:

(a) Preparation of background papers, documents and reports as required;

(b) Maintaining the official records of the Preparatory Conference;

(c) Assisting the Chairman and other officers in all tasks to facilitate Preparatory Conference outcomes;

(d) Transmission of the official communications of the Preparatory Conference;

(e) Organizational work and liaison with host governments for future sessions of the Preparatory Conference.

In carrying out its functions, the Preparatory Conference Secretariat would consult, as necessary, with other experts and regional and international organizations.

14. In accordance with the above decision of the Conference, in July 2001, the Chairman appointed Michael W. Lodge as Head of the Preparatory Conference Secretariat for a period commencing one month after the conclusion of the first session of the Preparatory Conference and concluding one month after the second session of the Preparatory Conference. The terms of this appointment were set out in a letter of appointment drawn up by the Chairman after consultation with the governments which contributed initially to the PCOF. The arrangements for the appointment of the Chairman were set out in a note dated 30 November 2001 also drawn up after consultation with the governments which contributed initially to the PCOF for the purpose of recording certain understandings regarding the appointment.

15. At the second session, after taking note of the existing arrangements, participants noted the need to further progress the work of the Preparatory Conference, in particular through the employment of consultants, and noted that additional resources might be allocated from the fund for this purpose. With respect to the level of compensation to be provided to the Chairman and Head of the Secretariat for their services, the Conference agreed to request a small group, comprising the representatives of Australia, Canada, China, Cook Islands and Papua New Guinea to develop intersessionally appropriate guidelines and scales. As a result of those discussions,

revised arrangements, set out in a letter from the Head of the Australian delegation, were concluded with the Chairman and with Mr Lodge in July 2002.

16. Since July 2001, the work of the Preparatory Conference Secretariat has been carried out by the Head of the Secretariat, in consultation with the Chairman and through the use of consultants for specific technical tasks. From time to time, additional assistance has been provided by individuals participating in the Preparatory Conference and by delegations. This has been most welcome.

17. In March 2003, the Government of New Zealand agreed to make available the services of a science coordinator to provide the Secretariat with additional expertise and to assist in servicing the meetings of WG.II and the SCG. This valuable contribution is much appreciated and may be considered a significant contribution-in-kind to the work of the Preparatory Conference.

18. The main tasks carried out by the Secretariat since July 2001 include:

(a) Establishment of the website for the Preparatory Conference, www.ocean-affairs.com;

(b) Establishment and maintenance of an electronic mailing list;

(c) Provision of information to participants through the website and electronic mailing list;

(d) Liaison with host governments in preparation for sessions of the Conference;

(e) Negotiation of administrative guidelines with the Director of the Forum Fisheries Agency;

(f) Circulation of requests for contributions to the Preparatory Conference Organizational Fund and necessary follow-up;

(g) Management of PCOF, budget planning, implementation and performance monitoring;

(h) Follow-up on work requested by the working groups of the Conference, including providing technical reports and studies, liaison with the chairs of working groups and preparation of necessary papers;

(i) Preparation of terms of reference for studies requested by the working groups, identification of consultants and negotiation of consultancy contracts;

(j) Ongoing supervision of consultants and Secretariat members;

(k) Drafting of working papers, reports and documents for sessions of the Conference;

(l) *Ad hoc* consultations with delegations.

19. Subject to the constraints that are necessarily imposed by the use of a part-time Secretariat operating on an interim basis, it is considered that the existing arrangements have proved sufficiently flexible to meet the needs of the Preparatory Conference to date.

V. ESTABLISHMENT OF A PERMANENT SECRETARIAT

20. The present arrangements may not be adequate to meet the demands of the process as the Preparatory Conference continues, particularly once it becomes necessary in due course to make practical arrangements for the establishment of the Commission and the entry into force of the Convention. In this regard, it will be recalled that, at PrepCon I, the Conference had decided to use its best efforts to complete its work within an overall time-frame of three years (i.e. by September 2003). Although it appears unlikely that the Convention will enter into force by that date, a number of delegations have indicated that they are well-advanced in the process of ratifying the Convention and it may be anticipated therefore that there is a reasonable likelihood that the Convention will enter into force in 2004.

21. In these circumstances, it will soon become necessary for the Conference to give consideration to the establishment of a Secretariat on a more permanent basis. While this may not necessarily require the immediate establishment of a fully-functional Commission Secretariat, consideration may be given to the appointment, if necessary on an interim basis, of the key officials required in order to oversee the transition from the present *ad hoc* arrangements to more permanent arrangements. In this regard, it may be noted that, as entry into force approaches, the demands on the Secretariat are likely to increase substantially. Among those demands will be the need to further refine the budget of the Commission, put in place the necessary administrative arrangements for the establishment of the Secretariat and the recruitment of staff and the need to work closely with the future host government on matters related to the establishment of the permanent headquarters of the Commission.

22. While no decisions on these matters are needed at PrepCon IV, it is suggested that this is a matter the Conference may wish to return to and consider in greater detail at PrepCon V.

<u>Recommendations</u>

23. The Preparatory Conference is invited to:

(a) express its appreciation to those participating governments that have contributed to the PCOF or otherwise contributed financially and in-kind to the work of the Preparatory Conference;

(b) invite those participants that have not already done so, as well as to intergovernmental organizations and agencies, national institutions, non-governmental organizations and international financial institutions to make voluntary contributions to the Preparatory Conference Organizational Fund.

(c) note the status of the Fund as at 31 December 2002, as per the audit report (Annex);

(d) consider the issue of funding to support participation in the SCG by developing States and territories;

(e) note the existing arrangements with respect to the Preparatory Conference Secretariat;

(f) provide such further direction with respect to the practical arrangements for a future Commission Secretariat as may be necessary;

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Annex

Status of Preparatory Conference Organizational Fund as at 31 December 2002

GENERAL PURPOSE FUND	USD	USD
A. Contributions received (net) *		
Australia	51,440.00	
China	29,980.00	
New Zealand	89,880.00	
New Caledonia	8,994.00	
Papua New Guinea	26,154.34	
Chinese Taipei	20,000.00	
Republic of Korea	30,000.00	
United States of America	143,000.00	
B. Other income		
Interest	1,854.35	
Total receipts	**401,304.79**	**401,304.79**
C. Disbursements		
(a) In-country conference costs	54,486.06	
(b) Chairman's travel and associated costs	6,319.60	
(c) Secretariat travel and associated costs	25,107.45	
(d) Retainers, consultancy fees and miscellaneous administrative expenses		
(i) retainers and honoraria	46,162.40	
(ii) consultancy fees, miscellaneous administrative expenses	68,955.83	
(e) FFA management charges	13,901.88	
(f) Other costs	195.66	
Total disbursements	**215,128.88**	**215,128.88**
D. Fund balance		**186,175.91**

SPECIAL PURPOSE FUND	USD	USD
A. Contributions received		
United States of America	40,000.00	
B. Other income		
Interest	Nil	
Total receipts	**40,000.00**	**40,000.00**
C. Disbursements		
SCG, July 2002, costs (travel, per diems of participants and secretariat)	40,756.11	
Total disbursements	**40,756.11**	**40,756.11**
D. Fund balance		**(756.11)**

Notes:

* A contribution of USD 50,000 towards the costs of the second session of the Conference was made by the Republic of Korea direct to the Government of Papua New Guinea.

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PREPARATORY CONFERENCE FOR THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC
Fifth session
Rarotonga, Cook Islands
29 September – 3 October 2003

WCPFC/PrepCon/WP.11/Rev.1/Add.1
29 September 2003

PREPARATORY CONFERENCE ORGANIZATIONAL FUND AND PREPARATORY CONFERENCE SECRETARIAT

Report of the Secretariat

1. The purpose of the present document is to update the information contained in document WCPFC/PrepCon/WP.11/Rev.1, which contains a full report on the status of the Preparatory Conference Organizational Fund and the practical arrangements that have been made to administer the fund as well as on the arrangements with respect to the Preparatory Conference Secretariat.

I. PREPARATORY CONFERENCE ORGANIZATIONAL FUND

2. As at 18 September 2003, donations to the PCOF had been made by the Governments of Australia, China, New Caledonia, New Zealand, Papua New Guinea, Republic of Korea, Chinese Taipei and the United States. The status of the PCOF as at 18 September 2003 is summarized in the annex to the present document, showing cumulative income and expenditure since the inception of the Fund. It should be noted that, in addition to the amounts shown in the annex, the European Commission has agreed to make a contribution of € 20,000 to the Fund and a further contribution is expected shortly from the United States.

3. On the basis that there would be a need to fund two further sessions of the Preparatory Conference in 2004 (one of those leading directly into the inaugural session of the Commission), it is anticipated that modest additional contributions to the Fund will be required in 2004. Any unspent balance in the Fund upon entry into force of the Convention would be transferred to the Commission.

II. AUDIT

4. In accordance with the guidelines for the administration of the PCOF, the Fund will be audited in March 2004 by the auditors for the Forum Fisheries Agency. The audit report and financial statement for the period ended 31 December 2003 will be made available to all delegations in due course.

III. FUNDING OF PARTICIPATION IN THE SCIENTIFIC COORDINATING GROUP

5. As noted in WCPFC/PrepCon/WP.11/Rev.1, a special contribution of US$ 40,000 was made by the United States towards the cost of convening the first meeting of the SCG in July 2002. For the second meeting of the SCG, in July 2003, funding for the participation of developing States and territories was provided in part by the Government of Japan and in part by a special contribution made to OFP-SPC by the Government of Papua New Guinea.

IV. PREPARATORY CONFERENCE SECRETARIAT

6. As noted in WCPFC/PrepCon/WP.11/Rev.1, since July 2001, the work of the Preparatory Conference Secretariat has been carried out by the Head of the Secretariat, in consultation with the Chairman and through the use of consultants for specific technical tasks. Since March 2003, the Secretariat has been greatly assisted by the services of a science coordinator, made available for the purpose by the Government of New Zealand. From time to time, additional assistance has been provided by individuals participating in the Preparatory Conference and by delegations. This has been most welcome. The main tasks carried out by the Secretariat are summarized in paragraph 18 of WCPFC/PrepCon/WP.11/Rev.1.

7. Subject to the constraints that are necessarily imposed by the use of a part-time Secretariat operating on an interim basis, it is considered that the existing arrangements have proved sufficiently flexible to meet the needs of the Preparatory Conference to date.

8. At PrepCon IV, it was noted that it will in due course become necessary for the Conference to give consideration to the establishment of a Secretariat on a more permanent basis. While this may not necessarily require the immediate establishment of a fully-functional Commission Secretariat, consideration may be given to the appointment, if necessary on an interim basis, of the key officials required in order to oversee the transition from the present *ad hoc* arrangements to more permanent arrangements. In this regard, it may be noted that, as entry into force approaches, the demands on the Secretariat are likely to increase substantially. Among those demands will be the need to further refine the budget of the Commission, put in place the necessary administrative arrangements for the establishment of the Secretariat and the recruitment of staff and the need to work closely with the future host government on matters related to the establishment of the permanent headquarters of the Commission.

9. It is suggested that these issues may be considered further in the context of discussions on the implications of entry into force of the Convention and the prioritization of the future work of the Preparatory Conference.

V. RECOMMENDATIONS

10. The Preparatory Conference is invited to:

(a) express its appreciation to those participating governments that have contributed to the PCOF or otherwise contributed financially and in-kind to the work of the Preparatory Conference;

(b) invite those participants that have not already done so, as well as to intergovernmental organizations and agencies, national institutions, non-governmental organizations and international financial institutions to make voluntary contributions to the Preparatory Conference Organizational Fund.

(c) note the status of the Fund as at 18 September 2003;

(d) note the existing arrangements with respect to the Preparatory Conference Secretariat;

(e) provide such further direction with respect to the practical arrangements for a future Commission Secretariat as may be necessary;

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Annex

Status of Preparatory Conference Organizational Fund as at 18 September 2003

GENERAL PURPOSE FUND	USD	USD
A. Contributions received (net) *		
Australia	117,649.60	
China	29,980.00	
New Zealand	89,880.00	
New Caledonia	8,994.00	
Papua New Guinea	26,154.34	
Chinese Taipei	20,000.00	
Republic of Korea	30,000.00	
United States of America	143,000.00	
B. Other income		
Interest	2,926.88	
Total receipts	**488,586.82**	**488,586.82**
C. Disbursements		
(a) In-country conference costs	76,488.06	
(b) Chairman's travel and associated costs	8,000.88	
(c) Secretariat travel and associated costs	31,112.52	
(d) Retainers, consultancy fees and miscellaneous administrative expenses		
(i) retainers and honoraria	84,126.75	
(ii) consultancy fees, miscellaneous administrative expenses	112,557.60	
(e) FFA management charges	20,122.70	
(f) Other costs	195.66	
Total disbursements	**332,604.17**	**332,604.17**
D. Fund balance		**155,982.65**

SPECIAL PURPOSE FUND	USD	USD
A. Contributions received		
United States of America	40,000.00	
B. Other income		
Interest	Nil	
Total receipts	**40,000.00**	**40,000.00**
C. Disbursements		
SCG, July 2002, costs (travel, per diems of participants and secretariat)	40,756.11	
Total disbursements	**40,756.11**	**40,756.11**
D. Fund balance		**(756.11)**

Notes:

* A contribution of USD 50,000 towards the costs of the second session of the Conference was made by the Republic of Korea direct to the Government of Papua New Guinea.

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PREPARATORY CONFERENCE FOR THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND CENTRAL PACIFIC
Sixth session
Bali, Indonesia
19 – 23 April 2004

WCPFC/PrepCon/WP.11/Rev.1/Add.2
19 April 2004

PREPARATORY CONFERENCE ORGANIZATIONAL FUND AND PREPARATORY CONFERENCE SECRETARIAT

Report of the Secretariat

1. The purpose of the present document is to further update the information contained in document WCPFC/PrepCon/WP.11/Rev.1/Add.1, which contains a full report on the status of the Preparatory Conference Organizational Fund and the practical arrangements that have been made to administer the fund as well as on the arrangements with respect to the Preparatory Conference Secretariat.

I. PREPARATORY CONFERENCE ORGANIZATIONAL FUND

2. As at April 2004, donations to the PCOF had been made by the Governments of Australia, China, New Caledonia, New Zealand, Papua New Guinea, Republic of Korea, Chinese Taipei and the United States and by the European Community. Since the last report, to PrepCon V in October 2003, the European Community had made a contribution of € 20,000 to the Fund and further contributions had been made by China, Chinese Taipei, Korea and the United States.

3. The status of the PCOF as at 31 December 2003 is summarized in the annex to the present document, showing cumulative income and expenditure since the inception of the Fund. It should be noted that, in addition to the amounts shown in the annex, expenditure of approximately $25,000 had been incurred in 2004 (mainly to discharge liabilities arising from PrepCon V).

3. It would be noted that the average expenditure for each session of the PrepCon to date has been in the order of $100,000. Experience to date has shown that the costs are significantly higher where the session has been held in a developing country and there has therefore been a need to fund in-country conference costs. If there is to be a final session of the Preparatory Conference in 2004, leading directly into the inaugural session of the Commission, there is an urgent need for further contributions to the Fund. Taking into account liabilities arising from PrepCon VI, it is likely that an additional $80,000 - $100,000 will be needed to complete the work of the Preparatory Conference. Any unspent balance in the Fund upon entry into force of the Convention would be transferred to the Commission.

II. AUDIT

4. In accordance with the guidelines for the administration of the PCOF, the Fund was audited in March 2004 by the auditors for the Forum Fisheries Agency. The audit report and financial statement for the period ended 31 December 2003 will be made available to all

delegations at PrepCon VI. The audit report is consistent with the information contained in the annex to the present document.

III. FUNDING OF PARTICIPATION IN THE SCIENTIFIC COORDINATING GROUP

5. As noted in WCPFC/PrepCon/WP.11/Rev.1, a special contribution of US$ 40,000 was made by the United States towards the cost of convening the first meeting of the SCG in July 2002. For the second meeting of the SCG, in July 2003, funding for the participation of developing States and territories was provided in part by the Government of Japan and in part by a special contribution made to OFP-SPC by the Government of Papua New Guinea.

IV. FUNDING OF PROPOSAL TO ENHANCE DATA COLLECTION IN INDONESIA AND PHILIPPINES

6. Following the discussions in Working Group II on the need to obtain improved catch data from Indonesia and Philippines as highlighted in the SCG 2 report (WCPFC/PrepCon/28), the delegation of Chinese Taipei made an initial contribution of US$ 20,000 towards financing this initiative. Pending any further contributions, and further discussion of a revised proposal which has been circulated to all delegations, this money has been set aside in the special purposes fund.

V. PREPARATORY CONFERENCE SECRETARIAT

7. As noted in WCPFC/PrepCon/WP.11/Rev.1, since July 2001, the work of the Preparatory Conference Secretariat has been carried out by the Head of the Secretariat, in consultation with the Chairman and through the use of consultants for specific technical tasks. Since March 2003, the Secretariat has been greatly assisted by the services of a science coordinator, made available for the purpose by the Government of New Zealand. From time to time, additional assistance has been provided by individuals participating in the Preparatory Conference and by delegations. This has been most welcome. The main tasks carried out by the Secretariat are summarized in paragraph 18 of WCPFC/PrepCon/WP.11/Rev.1.

8. Subject to the constraints that are necessarily imposed by the use of a part-time Secretariat operating on an interim basis, it is considered that the existing arrangements have proved sufficiently flexible to meet the needs of the Preparatory Conference to date.

9. At PrepCon IV, it was noted that it will in due course become necessary for the Conference to give consideration to the establishment of a Secretariat on a more permanent basis. While this may not necessarily require the immediate establishment of a fully-functional Commission Secretariat, consideration may be given to the appointment, if necessary on a transitional basis, of the key officials required in order to oversee the transition from the present *ad hoc* arrangements to more permanent arrangements. In this regard, it may be noted that, as entry into force approaches, and the Commission becomes operational, the demands on the Secretariat are likely to increase substantially. Among those demands will be the need to further refine the budget of the Commission and ultimately issue assessments to member countries to ensure the financing of the Commission in its first year of operation, put in place the necessary administrative arrangements for the establishment of the Secretariat and the recruitment of staff and the need to work closely with the future host government on matters related to the establishment of the permanent headquarters of the Commission.

10. It is suggested that these issues may be considered further in the context of discussions on the implications of entry into force of the Convention and the prioritization of the future work of the Preparatory Conference.

VI. RECOMMENDATIONS

11. The Preparatory Conference is invited to:

(a) express its appreciation to those participating governments that have contributed to the PCOF or otherwise contributed financially and in-kind to the work of the Preparatory Conference;

(b) invite those participants that have not already done so, as well as to intergovernmental organizations and agencies, national institutions, non-governmental organizations and international financial institutions to make voluntary contributions to the Preparatory Conference Organizational Fund.

(c) note the status of the Fund as at 31 December 2003;

(d) note the existing arrangements with respect to the Preparatory Conference Secretariat;

(e) provide such further direction with respect to the practical arrangements for a future Commission Secretariat as may be necessary;

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Annex

Status of Preparatory Conference Organizational Fund as at 31 December 2004

GENERAL PURPOSE FUND	USD	USD
A. Contributions received (net) *		
Australia	117,649.60	
China	59,995.00	
New Zealand	89,880.00	
New Caledonia	8,994.00	
Papua New Guinea	26,154.34	
Chinese Taipei	40,000.00	
Republic of Korea	40,000.00	
United States of America	188,000.00	
B. Other income		
Interest	3,071.24	
Total receipts	**597,126.36**	**597,126.36**
C. Disbursements		
(a) In-country conference costs	171,282.62	
(b) Chairman's travel and associated costs	9,632.99	
(c) Secretariat travel and associated costs	42,752.61	
(d) Retainers, consultancy fees and miscellaneous administrative expenses		
(i) retainers and honoraria	104,576.75	
(ii) consultancy fees, miscellaneous administrative expenses	113,112.20	
(e) FFA management charges	20,122.70	
(f) Other costs	195.66	
Total disbursements	**461,648.53**	**461,648.53**
D. Fund balance		**135,477.83**

SPECIAL PURPOSES FUND	USD	USD
A. Contributions received		
United States of America	40,000.00	
Chinese Taipei	20,000.00	
B. Other income		
Interest	Nil	
Total receipts	**60,000.00**	**60,000.00**
C. Disbursements		
SCG, July 2002, costs (travel, per diems of participants and secretariat)	40,756.11	
Total disbursements	**40,756.11**	**40,756.11**
D. Fund balance		**19,243.89**

Notes:

* A contribution of USD 50,000 towards the costs of the second session of the Conference was made by the Republic of Korea direct to the Government of Papua New Guinea.

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WCPFC Preparatory Conference
Third session
Manila, Philippines
18 – 23 November 2002

WCPFC/PrepCon/WP.12
3 November 2002

IMPLEMENTATION OF ARTICLE 22, PARAGRAPH 4, OF THE CONVENTION: COOPERATION WITH THE INTER-AMERICAN TROPICAL TUNA COMMISSION (IATTC) TO AVOID DUPLICATION OF MEASURES

Prepared by the Secretariat

1. At the second session of the Preparatory Conference, which was held in Madang, Papua New Guinea, 25 February to 1 March, 2002, the Chairman of the Conference reported on the outcome of informal consultations on the agenda item entitled "mechanisms to promote participation" (WCPFC/PrepCon/10). The Chairman reported that with respect to the issue of cooperation with other regional fishery management organizations to avoid duplication of measures, the delegations participating in the informal consultations agreed to recommend to the Preparatory Conference that it should undertake the necessary steps to give full effect to the provisions of article 22 of the Convention related to cooperation with other regional fishery management bodies, to avoid duplication of management measures between these organizations.

2. With respect to the IATTC, the delegations participating in the informal consultations agreed to recommend to the Preparatory Conference that it appoint a group to work with the IATTC to develop guidelines to give full effect to article 22, paragraph 4, of the Convention, with respect to the need to avoid duplication of management measures in the area of overlap between the two organizations and to promote consistent management measures throughout the migratory range of stocks that occur in the areas covered by the two conventions. These guidelines could be presented for the consideration of the full Preparatory Conference at its next session.

3. Whilst the Preparatory Conference has not yet formally appointed a group to work with the IATTC in the manner proposed by PrepCon 2, the present working paper is an attempt to set out the issues involved and to propose possible approaches that might be considered by such a group. The paper has been prepared by the Secretariat in collaboration with the staff of the IATTC. It is suggested that PrepCon 3 might offer an opportunity for consultations between interested delegations, and with the IATTC representatives, on this matter. Given the workload of PrepCon 3, it may be that such consultations might best be progressed informally, outside the regular meeting hours.

4. There are two aspects to the question of achieving compatible measures and avoiding duplication between the new Commission and the IATTC. One is the issue of measures that would apply in the specific area of overlap between the two Commissions, and the other is cooperation in the development of measures generally, for example observer programmes, MCS measures, and conservation measures that would apply to stocks migrating across the boundaries of the two organizations. There is also the issue of cooperation in scientific research and analysis, which is related to these other questions.

5. It should be noted that the IATTC also serves as the Secretariat for the Agreement on the International Dolphin Conservation Program (AIDCP), and the AIDCP establishes the observer program and certain reporting requirements affecting vessels fishing in the eastern Pacific. References to IATTC in this paper thus encompass AIDCP, when appropriate.

6. It is suggested that the best way to give full effect to Article 22 is to ensure that information on existing and potential management measures and all relevant scientific matters is shared by the two organizations in a systematic and meaningful manner. There are several ways that this could be accomplished:

(a) Attendance at appropriate meetings of the IATTC (and vice-versa) by representatives of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC), or the Preparatory Conference in the interim period, who would share information with IATTC and report back on developments in the eastern Pacific. In this regard, the Convention notes in Article 12 that representatives of IATTC should participate in the work of the Scientific Committee.

(b) Development of an exchange of letters with IATTC setting forth systematic procedures to share relevant management information.

(c) Creation of a permanent committee or working group, which would meet as appropriate to share information, exchange ideas and engage in a dialogue on how best to establish compatible and non-duplicative measures. Representatives and staff of the two organizations would attend meetings of such a working group.

These three approaches are not mutually exclusive. The third approach would obviously create a more robust and dynamic relationship, but at this stage it might be premature to proceed towards the establishment of such a permanent working group.

7. Regardless of how it is decided to proceed in the longer run to give full effect to Article 22 as it relates to the IATTC, the following points could serve as guidelines on how to approach the relationship and ensure, to the extent possible, that management measures are compatible and not unnecessarily burdensome to fishermen operating in the overlap area:

Draft Guidelines

8. The WCPFC and the IATTC, in recognition of the fact that fish stocks and fishing activities of interest to both organizations occur in both the eastern and western Pacific ocean, should:

(a) closely collaborate on all relevant scientific issues, including sharing catch data and cooperating in relevant research matters, particularly technical analysis on the status of tuna stocks in the Pacific;

(b) establish an arrangement to ensure that information on existing and potential management measures is shared by the two organizations in a systematic manner.

(c) endeavour to ensure that the management measures applied by each organization in the area of overlap between the two commissions:

(i) are not inconsistent.

(ii) do not result in fishermen being subjected to duplicative management requirements.

(iii) are respected by fishermen and vessels operating primarily under the purview of the other commission

(d) endeavour to ensure that, in the area of overlap between the two commissions, data and information reporting requirements of the two organizations are similar and are implemented in a manner that is not unnecessarily burdensome to fishermen.

(e) endeavour to ensure that any observer programmes established are closely coordinated, compatible, and mutually acceptable in terms of fulfilling the observer requirements of each organization.

(f) endeavour to ensure that any monitoring, control, and surveillance measures established are compatible, mutually supportive and closely coordinated in order to achieve maximum effectiveness and to avoid conflicting requirements.

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WCPFC Preparatory Conference
Fourth session
Nadi, Fiji Islands
5 – 9 May 2003

WCPFC/PrepCon/WP.13
15 April 2003

FORMULA FOR ASSESSMENT OF CONTRIBUTIONS TO THE BUDGET OF THE COMMISSION

Prepared by the Secretariat

1. At PrepCon III, held in Manila in November 2002, WG.I focused its discussions on the size and scope of the budget of the Commission. Amongst other matters, WG.I considered the likely costs of a Commission secretariat to deliver core functions and science, the costs associated with the various options for providing additional Commission services and the possible mechanisms for funding the participation of developing states consistent with article 30, paragraph 3, of the Convention.

2. At the end of PrepCon III, WG.I agreed that, at PrepCon IV, it should focus its discussions on:

(a) the development of a formula for financing the Commission's budget;

(b) the development of financial regulations for the Commission, including regulations to govern the administration of the special fund established under article 30, paragraph 3, of the Convention;

(c) finalizing the provisional draft budget for the first year of operation of the Commission.

3. To facilitate its discussions, WG.I requested the interim secretariat to prepare a paper setting out, inter alia:

(a) options for the budget funding formula. This advice should include information on the formula adopted or under consideration by other regional organizations;

(b) information relating to catch in the Convention Area by species, vessel flag and location;

(c) information relating to methods for calculation of national wealth and recent data from measures and indices of national wealth.

4. The present document responds to that request. It should be noted that preliminary discussions on the budget funding formula took place at MHLC6 and, to a limited extent, at PrepCon II in Madang. In responding to the request of WG.I, the present paper seeks to reflect the broad trends that emerged from those preliminary discussions, as well as to build upon the

preliminary data provided in earlier working papers (in particular documents MHLC/INF.2/Corr.1 and WCPFC/PrepCon/WP.4). It will further be recalled that, at PrepCon III, the delegation of Korea presented a paper on proposed financial regulations for the Commission, including a scheme of contributions (WCPFC/PrepCon/DP.9). Although there was insufficient time to consider that paper in detail at PrepCon III, some of the suggestions made in that paper have been reflected in the present document.

I. CONTRIBUTIONS FORMULA

5. The Convention, in article 18, paragraph 2, already gives guidance as to the nature of the scheme of contributions to the budget. It provides as follows:

> "… due consideration shall be given to each member being assessed an equal basic fee, a fee based on national wealth, reflecting the state of development of the member concerned and its ability to pay, and a variable fee. The variable fee shall be based, inter alia, on the total catch taken within exclusive economic zones and in areas beyond national jurisdiction in the Convention Area of such species as may be specified by the Commission, provided that a discount factor shall be applied to the catch taken in the exclusive economic zone of a member of the Commission which is a developing State or territory by vessels flying the flag of that member."

6. Discussions to date within MHLC and PrepCon have indicated general agreement that the scheme should be based on the considerations set out in the Convention, and the present document has been prepared on that basis. It is suggested that the key issues that need to be considered by WG.I are (a) the methodology for calculating each of the three components of the contributions formula, and (b) the relative weighting to be applied to each component. These factors are considered further below.

7. While the practices adopted by other fisheries commissions tend to be specific to the particular circumstances of the region concerned, and may not necessarily be relevant to the circumstances of the Western Central Pacific region, it may be noted that other fisheries commissions, including, for example, the Indian Ocean Tuna Commission (IOTC), have adopted a scheme of contributions based on similar considerations to those set out in the Convention. To further facilitate discussions in WG.I, Annex I to the present document contains a summary of the contributions formulae adopted by CCAMLR, IOTC, IATTC, ICCAT and CCSBT.

A. Base fee

8. The most straightforward component of the contributions formula is the base fee, or fixed component. In general, this element is shared equally among all members of the Commission and is paid in a lump sum at the beginning of each financial year. In previous discussions, the need to keep the base fee as low as possible has been highlighted, particularly by small island developing States. Some PrepCon participants, on the other hand, have suggested that the base fee should account for a substantial proportion of the total contribution by each member in order to promote cost-effectiveness in the budget process.

9. Table 1 of Annex II shows the effect of a base fee fixed at 10 per cent, 20 per cent and 30 percent of a notional budget of US$ 2 m respectively, divided in equal shares between each potential member of the Commission.

B. National wealth component

10. According to the Convention, the national wealth component should reflect the state of development of the member concerned and its ability to pay. Applying these parameters, there appear to be two basic options for calculation of the national wealth component. The first option, which was canvassed during earlier discussions in MHLC and at PrepCon II, is to classify each member of the Commission according to its state of development as measured by gross national product (GNP) or income (GNI). Using this approach, the following formula could be applied:

(a) Low income members (L) (where GNI per capita is $745 or less) would contribute a zero share to the national wealth payment. Indonesia, Papua New Guinea and Solomon Islands fall into this category.[1]

(b) Middle income members (M) (where GNI per capita is $746 - $9,205) would contribute a 0.5 share to the national wealth payment. Cook Islands, China, Fiji, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Philippines, Samoa, Tonga, Tuvalu and Vanuatu fall into this category.[2]

(c) High income members (H) (where GNI per capita is $9,206 or more) would contribute 8 shares to the national wealth payment. In this category are Australia, Canada, Chinese Taipei, France, Japan, Korea, New Zealand, United Kingdom and United States.[3]

11. An alternative formula, suggested by the delegation of Korea at PrepCon III, would be to calculate the national wealth component by reference to the scale of contributions to the capital stock of the World Bank. The rationale behind this approach, which leads to a significantly different, but possibly more sophisticated, scale of contributions, is explained in the paper circulated by Korea at PrepCon III.

12. Tables 2 and 3 of Annex II show the effect of the two options outlined in paragraphs 10 and 11 above for calculation of the national wealth component. Table 4 shows the effect of using the scale of contributions to the capital stock of the World Bank, as in Table 3, but with the application of a floor rate of 0.25 per cent.[4] For the purposes of this analysis, the tables show the effect of the formula on a notional budget of US$2 m, where the national wealth component is given a weighting of 10 per cent, 20 per cent, and 40 per cent of the total budget respectively.

C. Fish production formula

13. The third component of the budget contribution is the variable fee based, inter alia, on the total catch taken within exclusive economic zones and in areas beyond national jurisdiction in the

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[1] Low income as classified by the World Bank Atlas Method and published in the World Bank List of Economies, July 2002.

[2] Lower middle income and upper middle income as classified by the World Bank Atlas Method and published in the World Bank List of Economies, July 2002. Note that Cook Islands, Nauru and Tuvalu are not listed, but are assumed to be 'lower middle income'.

[3] High income as classified by the World Bank Atlas Method and published in the World Bank List of Economies, July 2002.

[4] The use of a floor rate of 0.03% would produce a potential minimum contribution of US$144, and a potential maximum contribution of US$81,125. Introduction of a 0.25% floor rate would produce a minimum contribution of US$1,116 and a maximum of US$75,312 (at a weighting of 10 per cent of total budget).

Convention Area of such species as may be specified by the Commission. In the information paper prepared for MHLC6 on this issue, it was suggested that the variable fee should be based on the total catches of the four main tuna species of commercial interest in the Convention Area, namely skipjack tuna, yellowfin tuna, bigeye tuna and albacore tuna.

16. Table 5 of Annex II shows a summary of the average catches of the four main tuna species over the most recent three-year period for which data are available (1999-2001). A three-year average is used since it was suggested at MHLC6 that the data used for purposes of calculating the variable fee should be based on a three-year moving average, because this has the advantage of smoothing production, contributions and Commission income. Table 4 summarizes average catches by (a) archipelagic waters, (b) exclusive economic zones of developing States and territories by vessels flying the flag of the State or territory concerned, and (c) catches in the Convention Area as a whole for all other participants. It must be noted that the table is based on currently-available data provided by SPC-OFP. WG.I will be aware that current SPC datasets do not correspond entirely to the Convention Area and a number of caveats must be taken into consideration, including:

(a) concerns over the quality of data available to SPC-OFP on Indonesian and Philippine catch estimates and uncertainty as to the division of catches between archipelagic waters, exlusive economic zones and high seas for those countries, as well as potential overlap;

(b) the fact that logsheet coverage for most Pacific Island States is less than 100 percent (although the data are considered reasonable and representative for determining the proportion of catch taken within exclusive economic zones);

(c) a large albacore catch (>80,000 t.) for several gears taken in the northern hemisphere of the Convention Area (currently assigned by SPC-OFP to unspecified fleets) has not taken into consideration.

17. Notwithstanding the above concerns, it is considered that the data in Table 5 is sufficiently accurate and representative for the purposes of the present exercise, although it will need to be further refined. However, unless the Commission decides to develop a customised dataset for this purpose, it may be that the Commission will need to take a pragmatic approach to this issue for the first three years of its operations, until the necessary datasets have been developed through the Commission.

18. Based on the data in Table 5, Table 6 in Annex II shows the effect of the calculation of the variable fee component of a notional budget of US$ 2 m, where the variable fee component is given a weighting of 70 percent of the budget.

19. The Convention also requires that a discount factor be applied to that part of the catch taken within the exclusive economic zone of a developing State or territory by vessels flying the flag of that developing State or territory. In order to give effect to that requirement, a discount factor of 0.4 has been applied to such catches (shown in column 3 of Table 6).

20. In addition to the appropriate discount factor, WG.I may also wish to consider whether a distinction should be made (by means of a weighting factor) between different fisheries (e.g. longline and purse seine) in order to avoid higher volume, lower value fisheries carrying a disproportionate burden of the budget. Such a system has been applied by CCAMLR.

21. Given that a lump-sum payment of the variable fee may cause financial difficulties for some island States, it is suggested that the Commission's financial regulations make provision for the payment of this element of the budgetary assessment in two equal annual instalments. The first payment should be made at the beginning of the Commission's financial year and the second instalment six months after the first payment.

D. Relative weighting of components

22. Once WG.I has considered the method of calculation of each of the three components of the budget, it will need to consider the relative weighting to be given to each component. In preliminary discussions at MHLC6 and during PrepCon II it was suggested that a weighting of 10 (base fee), 20 (national wealth) and 70 (variable production) could be applied. However, in discussions at PrepCon III, a proposal was made to apply a weighting of 20 (base fee), 40 (national wealth) and 40 (variable production).

E. Indicative scheme of contributions

23. It is suggested that WG.I give consideration to the above issues with a view to reaching agreement on the method of calculation for each component of the budget and on the relative weighting to be given to each factor. The tables in Annex II are provided as a guide to the potential impact on the scale of assessment of each of the methods of calculation discussed above.

24. Given the many variables involved, it has not been considered appropriate to include in this paper a consolidated example of a notional budget apportioned to any one of the above formulae. Should WG.I be able to make progress on the above issues, however, it would be relatively straightforward to produce such an indicative budget.

25. For the same reasons, it is suggested that WG.I may wish to try to make progress on the formula before it considers how the formula might be reflected in the draft financial regulations of the Commission.

26. It must be stressed that, in preparing the tables in Annex II, a notional budget of US$ 2 m has been used. This is not intended to prejudice ongoing discussions in WG.I with respect to the size of the budget and, in particular, those issues which are still pending in WG.I, including the cost of additional services and the extent of the special fund for developing countries pursuant to article 30 of the Convention.

II. FINANCING OF THE FIRST FINANCIAL PERIOD

27. It is inevitable that when the Convention first enters into force, the number of members of the Commission will be less than the number of participants in the Preparatory Conference. By taking an evolutionary approach to the establishment of the Commission, as recommended in WCPFC/PrepCon/WP.7, it is likely that the budget for the first two financial periods of the Commission will be lower than the budget for the third and subsequent years. Nothwithstanding, depending upon the number of members of the Commission at that time, there may also be a need to use additional measures to facilitate the transition from the Preparatory Conference to the Commission proper. Such measures, some of which have been adopted by other new international organizations, may include, for example, temporary adjustments to the scale of contributions to reflect the composition of the Commission as at the date of entry into force or a division of the budget into two or more parts, one to be financed by assessed

contributions in accordance with the agreed formula and one to be financed through voluntary contributions. In addition, depending on the date the Convention enters into force, it may be necessary to adopt a resolution adjusting the first financial period of the Commission to cover a period of more than 12 (but less than 24) months.

28. In order to ensure a smooth transition, it is also recommended that the Preparatory Conference Organizational Fund should be transferred to the Commission immediately upon entry into force. The Fund should, however, remain open for further contributions following entry into force, including from participants in the Preparatory Conference that have not yet completed the necessary steps to become members of the Commission. To ensure the necessary flow of funds into the Commission at an early stage, and to encourage early ratification or accession, it may also be agreed that, for a limited transitional period, voluntary contributions made to the Fund after entry into force may be set off against future assessments against the budget of the Commission.

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Annex I

Contributions formulae applied by selected regional fisheries organizations

I. COMMISSION FOR THE CONSERVATION OF ANTARCTIC MARINE LIVING RESOURCES (CCAMLR)

The CCAMLR contributions formula is not fixed. The Commission adopted the latest contributions formula in 2001 to cover the years 2002, 2003 and 2004. Prior to 2001 the contributions formula was last reviewed and agreed in 1996. The current formula includes a base fee levied equally across all members plus a contribution calculated on the basis of harvesting activity. The Commission agreed in 2001 that contributions from harvesting activities should account for at least 3 per cent of the total contributions. In 2002 the harvesting portion of the contributions formula provided 3.1 per cent of the total contributions.

The current formula for calculating the budget contribution from harvesting activities is based upon a contribution unit that is defined as either 1 tonne of toothfish species or 10 tonnes of krill or 5 tonnes of any other harvested resource. Harvesting members contribute at the rate of 13% of the total Member contributions per 100,000 contribution units. As harvest levels increase the portion of the total contributions recovered on the basis of harvesting activity will increase. All members involved in harvesting activities are required to pay a minimum harvest based contribution of A$ 1,000.

Under the CCAMLR formula the contribution from harvesting is calculated and then the balance of the total budget is apportioned equally across all members. The percentage of total contributions that may be levied against an individual member of the Commission is not able to be greater than 25 per cent. In 2002 the basic fee (or non-fishing fee component of the contributions) was approximately A$ 95,000 per member.

CCAMLR does not differentiate between developed and developing States in the calculation of contributions.

II. COMMISSION FOR THE CONSERVATION OF SOUTHERN BLUEFIN TUNA (CCSBT)

The contributions formula for CCSBT is established within the Convention on the Conservation of Southern Bluefin Tuna. Article 11 (2) of the Convention sets the contributions formula as follows:

> " 2. The contributions to the annual budget from each Party shall be calculated on the following basis:
>
> (a) 30% of the budget shall be divided equally among all the Parties; and
>
> (b) 70% of the budget shall be divided in proportion to the nominal catches of southern bluefin tuna among all the Parties."

As is clear from the above there is no provision within the CCSBT contributions formula to differentiate between members on the basis of development status.

III. INDIAN OCEAN TUNA COMMISSION (IOTC)

The contributions formula for IOTC is similar to that of WCPFC in that it also includes an element related to 'national wealth.' In the case of IOTC this is based on GNP per caput, averaged over a three-year period. Unlike WCPFC, and owing to the broader membership, the IOTC formula also differentiates between those members that have a fishing interest in the Convention Area and those that do not. The IOTC formula is as follows:

- Ten percent of the total budget of the Commission shall be divided equally among all the Members.

- Ten percent of the total budget shall be divided equally among the Members having fishing operations in the Area targeting species covered by the Commission.

- Forty percent of the total budget shall be allocated among the Members on the basis of per caput GNP for the calendar year three years before the year to which the contributions relate, weighted according to the economic status of the Members in accordance with the World Bank classification and subject to change in the classification threshold, high income Members shall be weighted by a factor of 8; middle income Members by a factor of 2; low-income Members by a factor of 0.

- Forty percent of the total budget shall be allocated among the Members in proportion to their average catch in the three calendar years beginning with the year five years before the year to which the contributions relate, weighted by a coefficient reflecting their development status. The coefficient of OECD members and the EC shall be 1, and the coefficient of other Members shall be one-fifth.

IV. INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS (ICCAT)

Article X of the ICCAT Convention sets out the formula for calculating the contributions of Contracting Parties to the Commission's budget. The basic procedures are as follows:

- US$ 1,000 for the basic Commission fee and US$ 1,000 for each Panel membership (e.g., if a Contracting Party participated in three Panels, then this part of the contribution would amount to US$ 4,000.)

- One-third of the budget not covered by the basic Commission membership fee of US$ 1,000 and Panel membership is contributed by the Contracting Parties in proportion to the payment of such fees.

- The remaining two-thirds of the budget not covered by the basic fee of US$ 1,000 for Commission membership and Panel fees is distributed in proportion to the total of the round weight of catch of Atlantic tuna and the net weight of canned products of such fishes.

The budget of the Commission was initially based in US Dollars and the basic fees continue to be shown in that currency. However, since 1992 the base currency has been Spanish Pesetas, in accordance with a Commission decision, and the Budget and Contributions Tables that are transmitted to the Contracting Parties are all prepared in Pesetas. Contributions may be made in either currency.

At its 1991 Meeting, the Commission adopted a set of basic principles for a new method of calculating contributions. This set of principles served as the basis for an amendment to the ICCAT Convention at a Conference of Plenipotentiaries in Madrid in 1992. Under the new scheme set out in the Madrid Protocol of 1992 (not yet in force), the Contracting Parties are divided into four groups (essentially based on economic development and per capita GNP, and on tuna catch and canned production), with every country in each group being assigned a portion of the Commission's total budget. The intent of the new scheme is to reduce the financial burden on less developed countries. The new scheme is summarized as follows:

- US$ 1,000 for the basic Commission fee and US$ 1,000 for each Panel membership.

- Group D countries (i.e. countries not included in Groups A, B or C) are assigned 0.25 percent of the budget.

- Group C countries (i.e. countries not included in Groups A or B, with per capita GNP exceeding US$ 2,000 or whose combined catch and canned production exceeds 5,000 MT) are assigned 1.0 percent of the budget.

- Group B countries (i.e. countries not included in Group A, with per capita GNP exceeding US$ 2,000 and with combined tuna catch and canning exceeding 5,000 MT) are assigned 3.0 percent of the budget.

- Group A countries (i.e. countries with developed market economies) are assigned the percentage of the Budget remaining after assignment to the other three Groups.

V. INTER AMERICAN TROPICAL TUNA COMMISSION (IATTC)

Under the 1949 Convention establishing the IATTC, the expenses incurred by the Commission shall be paid by the Contracting Parties through contributions in the form and proportion recommended by the Commission and approved by the Contracting Parties. The proportion of joint expenses to be paid by each Party shall be related to the proportion of the total catch from the fisheries covered by the Convention utilized by that Party, i.e. used for domestic consumption in the territory of that Party or that is the object of commercial transactions the financial benefits of which accrue to individuals or firms whose proprietors or stockholders are domiciled in the territory of that Party.

The IATTC is presently reviewing its contributions formula and it is proposed that the original formula be replaced by a formula which includes a base fee, a variable fee based on development status and a fee based on participation in the fishery. The recommendations of a working group on finance in 2001 were that the base fee would constitute 4 per cent of the budget, with a 6 per cent operational contribution. There would then be a contribution based on participation, divided into 'catch' (50 percent) and 'utilization' (40 percent). All contributions would be subject to a weighting factor based on development status. The basic indicator used for this purpose would be the World Bank classification of GDP per capita income.

It should be noted that the revised formula has not yet been agreed by the Commission.

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Annex II

Tables

Table 1	Base fee component
Table 2	National wealth component based on income group
Table 3	National wealth component based on capital stock contribution to World Bank
Table 4	National wealth component based on capital stock contribution to World Bank with floor rate of 0.25
Table 5	Summary of average catches of skipjack, yellowfin, bigeye and South Pacific albacore tuna, 1999-2001
Table 6	Indicative breakdown of variable fee component

Table 1: Base fee component

	Base fee (notional budget of US$2 m)		
	10%	*20%*	*30%*
Australia	$7,692.31	$15,384.62	$23,076.92
Canada	$7,692.31	$15,384.62	$23,076.92
China	$7,692.31	$15,384.62	$23,076.92
Cook Islands	$7,692.31	$15,384.62	$23,076.92
FSM	$7,692.31	$15,384.62	$23,076.92
Fiji	$7,692.31	$15,384.62	$23,076.92
France	$7,692.31	$15,384.62	$23,076.92
*French Polynesia **			
Indonesia	$7,692.31	$15,384.62	$23,076.92
Japan	$7,692.31	$15,384.62	$23,076.92
Kiribati	$7,692.31	$15,384.62	$23,076.92
Korea	$7,692.31	$15,384.62	$23,076.92
Marshall Islands	$7,692.31	$15,384.62	$23,076.92
Nauru	$7,692.31	$15,384.62	$23,076.92
*New Caledonia **			
New Zealand	$7,692.31	$15,384.62	$23,076.92
Niue	$7,692.31	$15,384.62	$23,076.92
Palau	$7,692.31	$15,384.62	$23,076.92
Papua New Guinea	$7,692.31	$15,384.62	$23,076.92
Philippines	$7,692.31	$15,384.62	$23,076.92
Samoa	$7,692.31	$15,384.62	$23,076.92
Solomon Islands	$7,692.31	$15,384.62	$23,076.92
Chinese Taipei	$7,692.31	$15,384.62	$23,076.92
Tonga	$7,692.31	$15,384.62	$23,076.92
Tuvalu	$7,692.31	$15,384.62	$23,076.92
United Kingdom	$7,692.31	$15,384.62	$23,076.92
USA	$7,692.31	$15,384.62	$23,076.92
Vanuatu	$7,692.31	$15,384.62	$23,076.92
Total	**$200,000.00**	**$400,000.00**	**$600,000.00**

Notes:

* The potential contribution of French Polynesia and New Caledonia will need to be considered in relation to the draft rules of procedure on the participation of territories

Table 2: National wealth component based on income group
Source of data: World Development indicators database, World Bank, 2002

	Income group	*Index*	*% share of NWC*	*National wealth component (notional budget of US$2 m)*		
				10%	*20%*	*40%*
Australia	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
Canada	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
China	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Cook Islands *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
FSM *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Fiji	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
France	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
French Polynesia **			0.000%	$0.00	$0.00	$0.00
Indonesia	L	0	0.000%	$0.00	$0.00	$0.00
Japan	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
Kiribati	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Korea	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
Marshall Islands *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Nauru *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
New Caledonia **			0.000%	$0.00	$0.00	$0.00
New Zealand	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
Niue *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Palau *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Papua New Guinea	L	0	0.000%	$0.00	$0.00	$0.00
Philippines	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Samoa	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Solomon Islands	L	0	0.000%	$0.00	$0.00	$0.00
Chinese Taipei ***	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
Tonga *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Tuvalu *	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
United Kingdom ****	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
USA	H	8	10.127%	$20,253.16	$40,506.33	$81,012.66
Vanuatu	M	0.5	0.633%	$1,265.82	$2,531.65	$5,063.29
Total		**79**	**100**	**$200,000.00**	**$400,000.00**	**$800,000.00**

Notes:

* Not listed in UNDP report: treated as (M)

** The potential contribution of French Polynesia and New Caledonia will need to be considered in relation to the draft rules of procedure on the participation of territories

*** Chinese Taipei treated as (H)

**** UK (in respect of Pitcairn Islands) treated as (L)

Table 3: National wealth component based on capital stock contribution to World Bank
Source: IBD Report 2002

	% contribution to IBD capital stock (2002)	*Adjusted % contribution to NWC*	*National wealth component (notional budget of US$2 m)*		
			10%	*20%*	*40%*
Australia	1.56	3.751%	$7,501.80	$15,003.61	$30,007.21
Canada	2.85	6.853%	$13,705.22	$27,410.44	$54,820.87
China	2.85	6.853%	$13,705.22	$27,410.44	$54,820.87
Cook Islands *	0.03	0.072%	$144.27	$288.53	$577.06
FSM *	0.03	0.072%	$144.27	$288.53	$577.06
Fiji	0.06	0.144%	$288.53	$577.06	$1,154.12
France	4.42	10.628%	$21,255.11	$42,510.22	$85,020.44
French Polynesia **					
Indonesia	0.95	2.284%	$4,568.41	$9,136.81	$18,273.62
Japan	8.08	19.428%	$38,855.49	$77,710.99	$155,421.98
Kiribati	0.03	0.072%	$144.27	$288.53	$577.06
Korea	1.01	2.428%	$4,856.94	$9,713.87	$19,427.75
Marshall Islands	0.03	0.072%	$144.27	$288.53	$577.06
Nauru *	0.03	0.072%	$144.27	$288.53	$577.06
New Caledonia **					
New Zealand	0.46	1.106%	$2,212.07	$4,424.14	$8,848.28
Niue *	0.03	0.072%	$144.27	$288.53	$577.06
Palau	0.03	0.072%	$144.27	$288.53	$577.06
Papua New Guinea	0.08	0.192%	$384.71	$769.42	$1,538.83
Philippines	0.44	1.058%	$2,115.89	$4,231.79	$8,463.57
Samoa	0.03	0.072%	$144.27	$288.53	$577.06
Solomon Islands	0.03	0.072%	$144.27	$288.53	$577.06
Chinese Taipei ***	1.56	3.751%	$7,501.80	$15,003.61	$30,007.21
Tonga	0.03	0.072%	$144.27	$288.53	$577.06
Tuvalu *	0.03	0.072%	$144.27	$288.53	$577.06
United Kingdom ****	0.03	0.072%	$144.27	$288.53	$577.06
USA	16.87	40.563%	$81,125.27	$162,250.54	$324,501.08
Vanuatu	0.04	0.096%	$192.35	$384.71	$769.42
Total	**41.59**	**100.000%**	**$200,000.00**	**$400,000.00**	**$800,000.00**

Notes:
* Not subscribers. Floor rate of 0.03 used.
** The potential contribution of French Polynesia and New Caledonia will need to be considered in relation to the draft rules of procedure on the participation of territories
*** Chinese Taipei allocated subscription rate equivalent to Australia
**** UK in respect of Pitcairn Islands

Table 4: National wealth component based on capital stock contribution to World Bank (floor rate of 0.25%)
Source IBD Report 2002

	% contribution to IBD capital stock (2002)	*Adjusted % contribution to NWC*	*National wealth component (notional budget of US$2 m)*		
			10%	*20%*	*40%*
Australia	1.56	3.482%	$6,964.29	$13,928.57	$27,857.14
Canada	2.85	6.362%	$12,723.21	$25,446.43	$50,892.86
China	2.85	6.362%	$12,723.21	$25,446.43	$50,892.86
Cook Islands *	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
FSM *	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Fiji	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
France	4.42	9.866%	$19,732.14	$39,464.29	$78,928.57
French Polynesia					
Indonesia	0.95	2.121%	$4,241.07	$8,482.14	$16,964.29
Japan	8.08	18.036%	$36,071.43	$72,142.86	$144,285.71
Kiribati	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Korea	1.01	2.254%	$4,508.93	$9,017.86	$18,035.71
Marshall Islands	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Nauru *	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
New Caledonia					
New Zealand	0.46	1.027%	$2,053.57	$4,107.14	$8,214.29
Niue *	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Palau	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Papua New Guinea	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Philippines	0.44	0.982%	$1,964.29	$3,928.57	$7,857.14
Samoa	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Solomon Islands	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Chinese Taipei **	1.56	3.482%	$6,964.29	$13,928.57	$27,857.14
Tonga	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Tuvalu *	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
United Kingdom ***	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
USA	16.87	37.656%	$75,312.50	$150,625.00	$301,250.00
Vanuatu	0.25	0.558%	$1,116.07	$2,232.14	$4,464.29
Total	**44.8**	**100.000%**	**$200,000.00**	**$400,000.00**	**$800,000.00**

Notes:
* not subscribers. Floor rate applied.
** Chinese Taipei allocated subscription rate equivalent to Australia
*** Pitcairn Island

Table 5: Summary of average catches of YF, SK, BE, ALB, 1999-2001
Source: SPC-OFP data

1	*2* *Average catches taken in archipelagic waters*	*3* *Average catches taken in EEZ of developing States and territories by own flag vessels*	*4* *Average catches taken in Convention Area (Incl. EEZ of developed countries)*	*5* *Total*
Australia		0.00	6,348.00	6,348.00
Canada		0.00	270.00	270.00
China		0.00	7,901.00	7,901.00
Cook Islands		0.00	0.00	0.00
FSM		2,769.00	13,949.00	16,718.00
Fiji	5,999.00	1,139.00	1,157.00	8,295.00
France		0.00	0.00	0.00
French Polynesia		6,295.00	189.00	6,484.00
Indonesia	281,339.00	70,334.00	0.00	351,673.00
Japan		0.00	389,748.00	389,748.00
Kiribati		2,100.00	4,934.00	7,034.00
Korea		0.00	188,404.00	188,404.00
Marshall Islands		1,767.00	12,983.00	14,750.00
Nauru		0.00	0.00	0.00
New Caledonia		1,634.00	32.00	1,666.00
New Zealand		0.00	14,578.00	14,578.00
Niue		0.00	0.00	0.00
Palau		100.00	0.00	100.00
Papua New Guinea	31,338.00	14,345.00	21,701.00	67,384.00
Philippines	163,766.00	40,942.00	25,362.00	230,070.00
Samoa		4,757.00	520.00	5,277.00
Solomon Islands	10,441.00	10,884.00	4,014.00	25,339.00
Chinese Taipei		0.00	267,216.00	267,216.00
Tonga		1,200.00	117.00	1,317.00
Tuvalu		0.00	0.00	0.00
United Kingdom		0.00	0.00	0.00
USA		0.00	148,411.00	148,411.00
Vanuatu		0.00	27,761.00	27,761.00
Total	**492,883.00**	**158,266.00**	**1,135,595.00**	**1,786,744.00**

Notes:
Pending better data, it is assumed that 80 per cent of Indonesian and Philippine 'EEZ' catch is taken in archipelagic waters

Table 6: Indicative breakdown of variable fee component
Source: SPC-OFP data

1	*2* *Average catch of SK, BE, YF, ALB in Convention Area (1999-2001)*	*3* *Average catch by own vessels in own EEZ (developing countries) discounted at 0.4*	*4* *Total catch (after application of discount factor)*	*5* *Adjusted percentage share of budget component*	*6* *Indicative share of 70% total budget (notional budget of US$2.2 m)*
Australia	6,348.00	0.00	6,348.00	0.53%	$7,400.78
Canada	270.00	0.00	270.00	0.02%	$314.78
China	7,901.00	0.00	7,901.00	0.66%	$9,211.34
Cook Islands	0.00	0.00	0.00	0.00%	$0.00
FSM	13,949.00	2,769.00	15,056.60	1.25%	$17,553.66
Fiji	1,157.00	5,999.00	3,556.60	0.30%	$4,146.44
France	0.00	0.00	0.00	0.00%	$0.00
French Polynesia	189.00	6,295.00	2,707.00	0.23%	$3,155.94
Indonesia	0.00	70,335.00	28,134.00	2.34%	$32,799.88
Japan	389,748.00	0.00	389,748.00	32.46%	$454,385.73
Kiribati	4,934.00	2,100.00	5,774.00	0.48%	$6,731.59
Korea	188,404.00	0.00	188,404.00	15.69%	$219,649.85
Marshall Islands	12,983.00	1,767.00	13,689.80	1.14%	$15,960.18
Nauru	0.00	0.00	0.00	0.00%	$0.00
New Caledonia	32.00	1,634.00	685.60	0.06%	$799.30
New Zealand	14,578.00	0.00	14,578.00	1.21%	$16,995.69
Niue	0.00	0.00	0.00	0.00%	$0.00
Palau	0.00	100.00	40.00	0.00%	$46.63
Papua New Guinea	21,701.00	14,345.00	27,439.00	2.28%	$31,989.62
Philippines	25,362.00	40,942.00	41,738.80	3.48%	$48,660.97
Samoa	520.00	4,757.00	2,422.80	0.20%	$2,824.61
Solomon Islands	4,014.00	10,884.00	8,367.60	0.70%	$9,755.32
Chinese Taipei	267,216.00	0.00	267,216.00	22.25%	$311,532.42
Tonga	117.00	1,200.00	597.00	0.05%	$696.01
Tuvalu	0.00	0.00	0.00	0.00%	$0.00
United Kingdom	0.00	0.00	0.00	0.00%	$0.00
USA	148,411.00	0.00	148,411.00	12.36%	$173,024.21
Vanuatu	27,761.00	0.00	27,761.00	2.31%	$32,365.02
Total	**1,135,595.00**	**163,127.00**	**1,200,845.80**	**100.00%**	**$1,400,000.00**

Notes:
* Catch taken in the Convention Area (excluding archipelagic waters of Fiji, Indonesia, PNG, Philippines and Solomon Islands and developing country EEZ catch in column 3)
** Catch taken in EEZ of developing States and territories by vessels flying the flag of that developing State or territory. Discounted by a factor of 0.4

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FORMULA FOR ASSESSMENT OF CONTRIBUTIONS TO THE BUDGET OF THE COMMISSION

Prepared by the Secretariat

1. At PrepCon III, held in Manila in November 2002, WG.I focused its discussions on the size and scope of the budget of the Commission. Amongst other matters, WG.I considered the likely costs of a Commission secretariat to deliver core functions and science, the costs associated with the various options for providing additional Commission services and the possible mechanisms for funding the participation of developing states consistent with article 30, paragraph 3, of the Convention. At the end of PrepCon III, WG.I agreed that, at PrepCon IV, it should focus its discussions on:

(a) the development of a formula for financing the Commission's budget;

(b) the development of financial regulations for the Commission, including regulations to govern the administration of the special fund established under article 30, paragraph 3, of the Convention;

(c) finalizing the provisional draft budget for the first year of operation of the Commission.

3. In accordance with that plan of work, the interim secretariat provided WG.I with a working paper setting out the various options for a scheme for the assessment of contributions to the budget of the Commission (WCPFC/PrepCon/13). Following its discussions at PrepCon IV, WG.I requested the Interim Secretariat to prepare a revision of the working paper for further consideration at PrepCon V, taking into account the discussions that had taken place. The Working Group also emphasized the need, in determining a contributions formula, to take into account the ability to pay of potential members, in particular small island developing States. The need to avoid a disproportionate burden on any one member was also highlighted, especially in light of the need to ensure stability in the budget and an adequate and reliable flow of resources into the Commission.

4. The present document responds to the request of WG.I by providing revised options for the budget funding formula taking into account the discussions on this matter at PrepCon IV. In particular, the proposed contributions formula has been revised to take into account updated information relating to catch in the Convention Area by species, vessel flag and location. In addition, a revised methodology for the calculation of the "national wealth" component is proposed.

I. CONTRIBUTIONS FORMULA

5. The Convention, in article 18, paragraph 2, already gives guidance as to the nature of the scheme of contributions to the budget. It provides as follows:

> "… due consideration shall be given to each member being assessed an equal basic fee, a fee based on national wealth, reflecting the state of development of the member concerned and its ability to pay, and a variable fee. The variable fee shall be based, inter alia, on the total catch taken within exclusive economic zones and in areas beyond national jurisdiction in the Convention Area of such species as may be specified by the Commission, provided that a discount factor shall be applied to the catch taken in the exclusive economic zone of a member of the Commission which is a developing State or territory by vessels flying the flag of that member."

6. Discussions to date within MHLC and PrepCon have indicated general agreement that the scheme should be based on the considerations set out in the Convention, and the present document has been prepared on that basis. The key issues that need to be considered by WG.I are (a) the methodology for calculating each of the three components of the contributions formula, and (b) the relative weighting to be applied to each component. These factors are considered further below.

A. Base fee

7. The most straightforward component of the contributions formula is the base fee, or fixed component. In general, this element is shared equally among all members of the Commission and is paid in a lump sum at the beginning of each financial year. Following the discussions at PrepCon IV, WG.I considered that a base fee equivalent to 10 per cent of the total budget, shared equally between all participants, provided an appropriate basis for further discussion of the base fee element. Several participants noted that the base fee element should be set at the lowest possible level in order to ensure full participation in the work of the Commission. In particular, the need to consider carefully the impact of the base fee on small island developing States was emphasized as well as the need to ensure that such States do not carry a disproportionate burden of the budget.

B. National wealth component

8. According to the Convention, the national wealth component should reflect the state of development of the member concerned and its ability to pay. At PrepCon IV, WG.I considered various suggestions and proposals for the calculation of the national wealth component. The advantages and disadvantages of each potential approach were discussed in detail in a wide-ranging debate, and various alternative formulae were proposed for investigation. The more prominent suggestions appeared to range between the use of contributions to the capital stock of the World Bank (originally proposed by the Republic of Korea in a paper circulated at PrepCon III), Gross National Income (GNI) per capita to establish broad banding within low, middle or high income categories, and GNI per capita adjusted to account for purchasing power parity (PPP), as well as the use of the average of multiple years' statistics.

9. It was emphasized by WG.I that the formula must fully reflect the criteria set out in article 18, paragraph 2, of the Convention, in that as well as reflecting the national wealth of the member concerned, the formula must also make due allowance for the state of development of the member and its ability to pay. It was also important also that the formula should not place a

disproportionate burden on any one State. The need for any formula to be reviewable after a reasonable period and in the light of changing economic circumstances was also highlighted as was the need to avoid a disproportionate impact on small island developing States, especially in terms of ability to pay. The Working Group felt that further work was needed to progress this issue and requested the interim secretariat to make further study as to reliable indices that may be utilized as well as to possible options for applying such indices in a manner that fully reflected the criteria of state of development and ability to pay.

12. The more prominent constraints on the use of contributions to WB capital stock are that notional floor and ceiling benchmarks would need to be established, noting that not all members subscribe capital to the WB, and that contributions to the WB capital are likely to reflect domestic development assistance and fiscal policies at least as much as they reflect comparative national wealth.

13. On the other hand, annual GNI per capita is a widely accepted and available economic indicator and may be considered a good practical surrogate statistic for the purposes of comparing the state of development of member economies. A refinement to GNI per capita available from the World Bank is for it to be expressed in terms of Purchasing Power Parity (PPP). While this allows for population size and exchange rate differences, unfortunately the World Bank does not provide this statistic for all potential Commission members. In particular, no GNI/per capita PPP statistics are available for several developing States and territories or for Chinese Taipei.

14. **Table 1**, which is included for the purposes of comparison only, shows the effect of using the three alternative methodologies discussed above (GNI average (PPP), GNI average, and WB capital stock) in order to calculate the national wealth component of a notional budget of US$2 m. It will be noted that all of these methodologies share similar constraints and inherent difficulties.

15. Taking into account the various views expressed, and noting the problems inherent in each of the proposals canvassed to date, it would appear that an approach based on GNI per capita, combined with a broadbanding system on the basis of high income (typically, OECD membership) and a division between medium and low income, may adequately provide for important differences between the relative wealth of Commission members. Such an approach would also provide important administrative simplicity and consistency.

15. **Table 2** therefore shows the application of such a system using average GNI per capita statistics for the period 1999-2001. Broadbanding is then applied on the basis of OECD membership (high income) and a division into middle and low income based on the level of GNI per capita. The table shows the effect of this approach on a notional budget of US$ 2 m where the national wealth component is given a relative weighting of 20 per cent.

C. Fish production component

13. The third component of the budget contribution is the variable fee based, inter alia, on the total catch taken within exclusive economic zones and in areas beyond national jurisdiction in the Convention Area of such species as may be specified by the Commission. In the information paper prepared for MHLC6 on this issue, it was suggested that the variable fee should be based on the total catches of the four main tuna species of commercial interest in the Convention Area, namely skipjack tuna, yellowfin tuna, bigeye tuna and albacore tuna. However, during the discussions at PrepCon IV, several participants in the Working Group suggested that the catch

statistics used should take into account the catches of all the stocks covered by the Convention throughout the Convention Area.

14. In the light of the discussions, **Table 3** provides an updated summary of the average catches of all the stocks covered by the Convention for which data are available for the period 1999-2002. These include the main target tuna species, as well as the four main billfish species (black marlin, blue marlin, striped marlin and swordfish). It has not been possible to provide indicative estimates of other bycatch species owing to paucity of data. Table 3 shows the breakdown of catches taken in (a) archipelagic waters, (b) the exclusive economic zones of developing States and territories by vessels flying the flag of the State or territory concerned, and (c) the Convention Area as a whole for all other participants.

15. Although the datasets have been further refined since PrepCon IV, it must again be noted that the table is based on currently-available data provided by SPC-OFP. WG.I will be aware that current SPC datasets do not correspond entirely to the Convention Area and a number of caveats must be taken into consideration, including:

(a) concerns over the quality of data available to SPC-OFP on Indonesian and Philippine catch estimates and uncertainty as to the division of catches between archipelagic waters, exlusive economic zones and high seas for those countries, as well as potential overlap;[1]

(b) the fact that logsheet coverage for most Pacific Island States is less than 100 percent (although the data are considered reasonable and representative for determining the proportion of catch taken within exclusive economic zones);

(c) a large north Pacific albacore catch (>80,000 t.) for several gears taken in the northern hemisphere of the Convention Area, west of 150° W (currently assigned by SPC-OFP to unspecified fleets) has not been taken into consideration.[2]

16. Notwithstanding the above concerns, it is considered that the data in Table 3 is sufficiently accurate and representative for the purposes of the present exercise, although it will need to be further refined. However, unless the Commission decides to develop a customised dataset for this purpose, it may be that the Commission will need to take a pragmatic approach to this issue for the first three years of its operations, until the necessary datasets have been developed through the Commission.

17. Given that a lump-sum payment of the variable fee may cause financial difficulties for some island States, it is suggested that the Commission's financial regulations make provision for the payment of this element of the budgetary assessment in two equal annual instalments. The first payment should be made at the beginning of the Commission's financial year and the second instalment six months after the first payment.

D. Indicative scheme of contributions

[1] In the absence of sufficient data, it has been assumed that 80 per cent of the domestic catch by Philippines and Indonesia is taken within archipelagic waters.

[2] SPC is trying to get this catch broken down by fleet with the help of IATTC and statistics compiled through the North Pacific Albacore working group. The catch is mainly taken by Japan, Korea, Chinese Taipei and the United States.

18. **Table 4** shows an indicative scheme of contributions based on a notional budget of US $2 m with a relative weighting of 10 per cent (base fee), 20 per cent (national wealth component) and 70 per cent (fish production component). In calculating the dollar amount of the fish production component, it should be noted that a discount factor has been applied to the catches taken within the exclusive economic zone of a developing State or territory by vessels flying the flag of that developing State or territory. In line with the discussions at PrepCon IV, a discount factor of 0.4 has been applied to such catches. No distinction has been made for the time being between different fisheries in the absence of specific guidance from WG.I.

19. It must again be emphasized that, in preparing Table 4, a notional budget of US$ 2 m has been used. This is not intended to prejudice ongoing discussions in WG.I with respect to the size of the budget and, in particular, those issues which are still pending in WG.I, including the cost of additional services and the extent of the special fund for developing countries pursuant to article 30 of the Convention.

20. In giving consideration to the proposed formula, WG.I may wish to consider further the following issues:

(a) the relative weighting of the various components;

(b) the discount factor to be applied;

(c) the treatment of French Polynesia, New Caledonia and the United Kingdom with respect to the national wealth component and fish production component;[3]

II. FINANCING OF THE FIRST FINANCIAL PERIOD

21. It is inevitable that when the Convention first enters into force, the number of members of the Commission will be less than the number of participants in the Preparatory Conference. By taking an evolutionary approach to the establishment of the Commission, as recommended in WCPFC/PrepCon/WP.7, it is likely that the budget for the first two financial periods of the Commission will be lower than the budget for the third and subsequent years. Nothwithstanding, depending upon the number of members of the Commission at that time, there may also be a need to use additional measures to facilitate the transition from the Preparatory Conference to the Commission proper. Such measures, some of which have been adopted by other new international organizations, may include, for example, temporary adjustments to the scale of contributions to reflect the composition of the Commission as at the date of entry into force or a division of the budget into two or more parts, one to be financed by assessed contributions in accordance with the agreed formula and one to be financed through voluntary contributions. In addition, depending on the date the Convention enters into force, it may be necessary to adopt a resolution adjusting the first financial period of the Commission to cover a period of more than 12 (but less than 24) months.

22. In order to ensure a smooth transition, it is also recommended that the Preparatory Conference Organizational Fund should be transferred to the Commission immediately upon

[3] For the purposes of the present paper, in modelling the broadbanding of the NWC, French Polynesia, New Caledonia and the United Kingdom have been considered in the high-income (OECD) category. With respect to the fish production component, WG.I may wish to provide direction as to the allocation of the catches taken in the zones of the French territories until such time as they become participating members of the Commission in accordance with the rules of procedure.

entry into force. The Fund should, however, remain open for further contributions following entry into force, including from participants in the Preparatory Conference that have not yet completed the necessary steps to become members of the Commission. To ensure the necessary flow of funds into the Commission at an early stage, and to encourage early ratification or accession, it may also be agreed that, for a limited transitional period, voluntary contributions made to the Fund after entry into force may be set off against future assessments against the budget of the Commission.

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Annex

Tables

Table 1	Comparison of national wealth proxy data
Table 2	National wealth component based on 3-year average GNI per capita and broadbanding
Table 3	Summary of average catches of highly migratory species in the Convention Area, 1999-2002
Table 4	Contribution scenario

Table 1: Comparison of proxy data for computation of national wealth component

Countries	GNI (PPP) 2001 p/c	Proportion of *national* wealth component	GNI ave. 1999-2001 p/c	Proportion of *national* wealth component	Contribution to World Bank capital (%)	Proportion of *national* wealth component
Australia	24,360	7.38%	20,343	8.00%	1.56	3.48%
Canada	26,530	8.04%	20,870	8.21%	2.85	6.36%
China	3,950	1.20%	837	0.33%	2.85	6.36%
Cook Islands	***2,190***	0.66%	4,689	1.84%	0.25	0.56%
FSM	***5,390***	1.63%	1,970	0.77%	0.25	0.56%
Fiji	4,920	1.49%	2,200	0.87%	0.25	0.56%
France	24,080	7.30%	23,597	9.28%	4.42	9.87%
French Polynesia	28,020	8.49%	16,150	6.35%		
Indonesia	2,830	0.86%	610	0.24%	0.95	2.12%
Japan	25,550	7.74%	34,987	13.76%	8.08	18.04%
Kiribati	***2,190***	0.66%	923	0.36%	0.25	0.56%
Korea	15,060	4.56%	8,947	3.52%	1.01	2.25%
Marshall Islands	***5,390***	1.63%	2,190	0.86%	0.25	0.56%
Nauru	***2,190***	0.66%	800	0.31%	0.25	0.56%
New Caledonia	25,200	7.64%	14,050	5.52%		
New Zealand	18,250	5.53%	13,123	5.16%	0.46	1.03%
Niue	***2,190***	0.66%	800	0.31%	0.25	0.56%
Palau	***8,500***	2.58%	6,940	2.73%	0.25	0.56%
Papua New Guinea	2,450	0.74%	673	0.26%	0.25	0.56%
Philippines	4,070	1.23%	1,047	0.41%	0.44	0.98%
Samoa	6,130	1.86%	1,447	0.57%	0.25	0.56%
Solomon Islands	*1,910*	0.58%	657	0.26%	0.25	0.56%
Chinese Taipei	***22,590***	6.84%	13,433	5.28%	1.56	3.48%
Tonga	***2,190***	0.66%	1,603	0.63%	0.25	0.56%
Tuvalu	***2,190***	0.66%	1,328	0.52%	0.25	0.56%
United Kingdom	*24,340*	7.37%	25,250	9.93%	0.25	0.56%
USA	34,280	10.39%	33,780	13.28%	16.87	37.66%
Vanuatu	3,110	0.94%	1,083	0.43%	0.25	0.56%
Total	330,050	100.00%	254,327	100.00%	44.8	100.00%

Table 2: National wealth component based on 3-year average GNI per capita and broadbanding

OECD/High income Members			Agg. GNI	% of Agg.	% of budget	NWC Amount	% of NWC
Japan	34,987				1.61%	32,103	8.03%
USA	33,780				1.61%	32,103	8.03%
United Kingdom	25,250				1.61%	32,103	8.03%
France	23,597				1.61%	32,103	8.03%
Canada	20,870				1.61%	32,103	8.03%
Australia	20,343				1.61%	32,103	8.03%
French Polynesia	16,150				1.61%	32,103	8.03%
New Caledonia	14,050				1.61%	32,103	8.03%
Chinese Taipei	13,433				1.61%	32,103	8.03%
New Zealand	13,123				1.61%	32,103	8.03%
Korea	8,947	11			1.61%	32,103	8.03%
			224,530	88%			
Middle income members							
Palau	6,940				0.28%	5,659	1.41%
Cook Islands	4,689				0.28%	5,659	1.41%
Fiji	2,200				0.28%	5,659	1.41%
Marshall Islands	2,190				0.28%	5,659	1.41%
FSM	1,970				0.28%	5,659	1.41%
		5	17,989	7%			
Lower income members							
Tonga	1,603				0.08%	1,548	0.39%
Samoa	1,447				0.08%	1,548	0.39%
Tuvalu	1,328				0.08%	1,548	0.39%
Vanuatu	1,083				0.08%	1,548	0.39%
Philippines	1,047				0.08%	1,548	0.39%
Kiribati	923				0.08%	1,548	0.39%
China	837				0.08%	1,548	0.39%
Nauru	800				0.08%	1,548	0.39%
Niue	800				0.08%	1,548	0.39%
Papua New Guinea	673				0.08%	1,548	0.39%
Solomon Islands	657				0.08%	1,548	0.39%
Indonesia	610	12	11,808	5%	0.08%	1,548	0.39%
Total	**254,327**	**28**	254,327	100%	20.00%	400,000	100%

Table 3: Summary of average catches of main tuna and billfish species, 1999-2002 (source SPC-OFP data)

1	2 Average catches taken in archipelagic waters	3 Average catches taken in EEZ of developing States and territories by own flag vessels	4 Average catches taken in Convention Area (Incl. EEZ of developed countries)	5 Total
Australia			8,379.00	8,379.00
Canada			239.00	239.00
China			11,413.00	11,413.00
Cook Islands		261.00	7.00	268.00
FSM		3,102.00	14,769.00	17,871.00
Fiji	1,312.00	7,239.00	1,399.00	9,950.00
France		0.00	0.00	0.00
French Polynesia		7,011.00	219.00	7,230.00
Indonesia	295,970.40	73,992.60	0.00	369,963.00
Japan			403,270.00	403,270.00
Kiribati		2,092.00	4,804.00	6,896.00
Korea			200,854.00	200,854.00
Marshall Islands		2,440.00	17,776.00	20,216.00
Nauru		0.00	0.00	0.00
New Caledonia		1,860.00	36.00	1,896.00
New Zealand			16,114.00	16,114.00
Niue		0.00	0.00	0.00
Palau		100.00	0.00	100.00
Papua New Guinea	37,699.00	17,510.00	26,149.00	81,358.00
Philippines	172,064.00	43,016.00	30,081.00	245,161.00
Samoa		4,862.00	530.00	5,392.00
Solomon Islands	10,060.00	10,071.00	3,546.00	23,677.00
Chinese Taipei			285,336.00	285,336.00
Tonga		1,433.00	140.00	1,573.00
Tuvalu		0.00	0.00	0.00
United Kingdom			0.00	0.00
USA			150,809.00	150,809.00
Vanuatu		0.00	20,862.00	20,862.00
Total	**517,105.40**	**174,989.60**	**1,196,732.00**	**1,888,827.00**

Note: It is assumed that 80 per cent of the domestic catch by Philippines and Indonesia is taken within archipelagic waters

Table 4: Contributions scenario where base fee = 10%, NWC (broadbanding based on GNI per caput) = 20%, catch component = 70% (discount factor to own EEZ catch of 0.4). Notional budget of US$ 2 m.

Countries	Band classification	Base Fee	National Wealth Component	Catch Component	Total Contribution	% of Budget
Australia	OECD member	7,143	32,103	9,230	48,476	2.42%
Canada	OECD member	7,143	32,103	263	39,509	1.98%
China	lower income	7,143	1,548	12,572	21,262	1.06%
Cook Islands	middle income	7,143	5,659	123	12,924	0.65%
FSM	middle income	7,143	5,659	17,636	30,437	1.52%
Fiji	middle income	7,143	5,659	4,731	17,532	0.88%
France	OECD member	7,143	32,103	0	39,246	1.96%
French Polynesia	high income	7,143	32,103	7,964	47,210	2.36%
Indonesia	lower income	7,143	1,548	32,603	41,293	2.06%
Japan	OECD member	7,143	32,103	444,223	483,469	24.17%
Kiribati	lower income	7,143	1,548	6,214	14,904	0.75%
Korea	OECD member	7,143	32,103	221,251	260,497	13.02%
Marshall Islands	middle income	7,143	5,659	20,656	33,458	1.67%
Nauru	lower income	7,143	1,548	0	8,690	0.43%
New Caledonia	high income	7,143	32,103	859	40,105	2.01%
New Zealand	OECD member	7,143	32,103	17,750	56,997	2.85%
Niue	lower income	7,143	1,548	0	8,690	0.43%
Palau	middle income	7,143	5,659	44	12,845	0.64%
Papua New Guinea	lower income	7,143	1,548	36,520	45,210	2.26%
Philippines	lower income	7,143	1,548	52,090	60,780	3.04%
Samoa	lower income	7,143	1,548	2,726	11,417	0.57%
Solomon Islands	lower income	7,143	1,548	8,344	17,034	0.85%
Chinese Taipei	high income	7,143	32,103	314,312	353,558	17.68%
Tonga	lower income	7,143	1,548	786	9,476	0.47%
Tuvalu	lower income	7,143	1,548	0	8,690	0.43%
United Kingdom	OECD member	7,143	32,103	0	39,246	1.96%
USA	OECD member	7,143	32,103	166,124	205,370	10.27%
Vanuatu	lower income	7,143	1,548	22,981	31,671	1.58%
Total		***200,000***	***400,000***	***1,400,000***	***2,000,000***	***100.00%***