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**Report of the**

# TWENTY-FOURTH SESSION OF THE COORDINATING WORKING PARTY ON FISHERY STATISTICS

**Rome, 5–8 February 2013**

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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## PREPARATION OF THIS DOCUMENT

This document is the report of the twenty-fourth session of the Coordinating Working Party on Fishery Statistics (CWP), held in Rome from 5 to 8 February 2013.

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**ABSTRACT**

This document contains the report of the twenty-fourth session of the Coordinating Working Party on Fishery Statistics (CWP) held in Rome, Italy, from 5 to 8 February 2013. This was the first session after the Aquaculture and Fishery subject Groups were formally established. Two subject Groups had their own meetings to review the progress made and develop work plan for the next intersessional period prior to the main session. The main session received the report from the two Groups and approved the work plans presented. Other main topics discussed were the revision of International Statistical Standard Classifications of Fishing Gears (ISSCFG), the revision and future dissemination of the CWP Handbook, the review of status of "Rules of Procedure" and the improvement in visibility of CWP.

# CONTENTS

## OPENING OF THE SESSION AND WELCOME

1. The twenty-fourth session of the Coordinating Working Party on Fishery Statistics (CWP-24) was held in Rome, Italy on 7 and 8 February 2013 in conjunction with the Aquaculture Group meeting and Fishery Group meeting, following the "Operational guidelines corresponding to the establishment of two subject groups" agreed at the 23rd session of CWP (Appendix 5 of the CWP-23 Report).

2. Representatives from the following organizations participated in the meeting:

- Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- General Fisheries Commission for the Mediterranean (GFCM)
- Food and Agriculture Organization of the United Nations (FAO)
- International Commission for the Conservation of Atlantic Tunas (ICCAT)
- International Council for the Exploration of the Sea (ICES)
- Northwest Atlantic Fisheries Organization (NAFO)
- South East Atlantic Fisheries Organization (SEAFO)
- Statistical Office of the European Communities (Eurostat)

Benguela Current Commission (BCC) and Regional Commission for Fisheries (RECOFI) also attended as observers under FAO nomination.

Members not represented at the 24th Session were:

- Commission for the Conservation of Southern Bluefin Tuna (CCSBT)
- Indian Ocean Tuna Commission (IOTC)
- Inter-American Tropical Tuna Commission (IATTC)
- International Whaling Commission (IWC)
- Network of Aquaculture Centres in Asia and the Pacific (NACA)
- North East Atlantic Fisheries Commission (NEAFC)
- North Atlantic Salmon Conservation Organization (NASCO)
- Organisation for Economic Co-operation and Development (OECD)
- Secretariat of the Pacific Community (SPC)
- Southeast Asian Fisheries Development Centre (SEAFDEC)
- Western and Central Pacific Fisheries Commission (WCPFC)

This session was attended by eight member organizations out of total 19 members, and this did not constitute a quorum according to the Rules of Procedure of CWP. Therefore, the Secretariat informed that this session could not make any legally binding decisions. The participant list is in Appendix 1.

3. Mr David Ramm, Chair of CWP, opened the meeting at 14.40 hours on Thursday 7 February 2013.

## ADOPTION OF THE AGENDA

4. The draft agenda was adopted without modification (Appendix 2).

## ELECTION OF CHAIRS

5. Following the "Operational guidelines corresponding to the establishment of two subject groups" agreed at the 23rd session of CWP (Appendix 5 of the CWP-23 Report), Ms Friderike Oehler (Eurostat), newly appointed coordinator of Aquaculture Group and Mr George Campanis (SEAFO), newly appointed coordinator of Fishery Group, were elected as Co-chair(s).

## REVIEW OF MEMBERSHIP

6. The Secretary reported no change in membership of the CWP since the previous session. However, the CWP focal points of GFCM, NACA, NAFO, SEAFDEC and Eurostat had changed. The CWP expressed sincere appreciation for the services provided by departed focal points and welcome new focal points.

7. Corresponding to the invitation, BCC attended the session and indicated its interest in joining the CWP as a Member organization once the Commission was formalized as a legally bound multilateral convention body.

8. It was reported that the Secretary was in contact with Mekong River Commission (MRC) and Lake Victoria Fisheries Organization (LVFO) taking the opportunity of the 4th meeting of Regional Fishery Body Secretariats' Network held on 13 July 2012 in Rome, Italy to explain the role of CWP and procedure for joining the Membership; no feedback had been received so far.

## AQUACULTURE GROUP ACTIVITIES

### *5.1 and 5.2 Report of intersessional activities*

9. Mr Jiansan Jia, the coordinator of the Aquaculture Group of the last intersessional period, expressed gratitude to attend for the first time the CWP session. The Aquaculture Group initiated its activities at two ad-hoc Aquaculture Group meetings (Puerto Varas, Chile; 3–4 October 2008 and Rome, Italy; 6 March 2009) prior to the formal establishment of its status at the CWP-23, developing Terms of Reference (ToR) of the Group and discussing on the contents of the aquaculture components of the CWP Handbook that was originally developed at an Expert Workshop for Drafting CWP Handbook on Standards of Aquaculture Statistics (Ha Long Bay, Vietnam; 10–14 November 2009).

10. The first Aquaculture Group meeting was held on 2 October 2010 in Phuket, Thailand with the participation of four CWP participating organizations (FAO, NACA, SEAFDEC, and SPC) and additional nine experts nominated by FAO in conjunction with the 5th session of COFI Sub-Committee on Aquaculture. The meeting finalized the ToR of the Group and agreed its work plan and recommendations, including FAO to finalize the draft text of the Handbook taking into account inputs from various experts for consideration at the second Aquaculture Group meeting. The report of the meeting is in Appendix 8.

11. The second Aquaculture Group meeting was held on 14 July 2012 in Rome, Italy. The meeting was originally planned on 31 March 2012 in Cape Town, South Africa, in conjunction with the 6th session of COFI Sub-committee of Aquaculture, following its Rules of Procedures. However due to difficulties in securing adequate participation, the meeting was rescheduled. Four CWP participating

organizations (FAO, ICCAT, SEAFDEC, and SPC) attended the meeting, including three FAO sub-regional offices (the Caribbean, Central Asia and the Pacific Islands) participating as a part of FAO experts. After reviewing the revised text, the Group further requested for the Secretariat to streamline and simplify the text and decided the schedule of further review and hearing from countries. It also discussed how to strengthen the role of members in promoting the Strategy and Outline Plan for Improving Information on Status and Trend of Aquaculture (Strategy-STA). The report is in Appendix 9.

12. At the Aquaculture Group meeting held on 5 February 2013 (Appendix 3), prior to the session, the Group resolved several remaining issues and finalized the draft Aquaculture component of the CWP Handbook that is in Appendix 11. In addition, the Aquaculture Group was informed about activities held to support the implementation of the Strategy-STA during the intersessional period, including the Regional Workshop in the Pacific Island countries and territories to identify capacity building needs in aquaculture statistics held in Fiji in October 2012, the FAO Scoping Workshop on Regional Cooperation Programme for Responsible Aquaculture and Fisheries Development in the Central Asian and the Caucasian Countries held in Urumqi, Xinjiang, Peoples's Republic of China, from 4–8 June 2012 and activities by the Aquaculture Network.

### *5.3 Work plan for the next intersessional period*

13. The Aquaculture Group identified the following priorities for the next intersessional period:

- Dissemination of the Aquaculture section of the Handbook with adequate language coverage;
- Revision of standard questionnaires and development of guidelines in line with the new Handbook;
- Continuing efforts to implement Strategy-STA, with special focus on coordination and collaboration to mobilize funding and when funds become available to implement activities including regional meetings and follow-up actions;
- Encouraging members to conduct case studies for data collection and analyses of feeds and sharing the results; and
- Enhancing regional consultation among Members as well as with partners in a Region.

A Task Force was established for developing a new standard aquaculture questionnaire and supporting guidelines with FAO (FIPS) as leading organization and expected participation of Eurostat, GFCM and SEAFDEC.

14. The session acknowledged the progress made and approved the work plan for the next intersessional period.

## FISHERY GROUP ACTIVITIES

### *6.1 and 6.2 Report of intersessional activities*

15. Mr David Ramm, the coordinator of Fishery Group of the last intersessional period, reported the outcome of the Fishery Group meeting held on 6 and 7 February 2013, immediately prior to the CWP-24 session. The report of the meeting is in Appendix 4. The Fishery Group dedicated its intersessional period to the review and updating of the fishery-related components of the CWP Handbook. Following the outcomes of the intersessional Fishery Group Meeting held in Rome, Italy, December 2011 (Appendix 10), the Fishery Group had finalized the core contents of the revised Handbook. The Group agreed to constrain the core part of the Handbook to describe established standards and classifications,

either adopted by CWP or by other International mechanisms in a broader context. It was also agreed to establish a separate section for background material including references, case studies and preparatory documents which may assist in developing global standards in the future. Regarding the core contents of the Handbook, a number of existing sections did not require substantial updating. Several new sections were developed during the intersessional period, including sections on: data confidentiality, data need for stock monitoring and assessment, and fisheries statistics for ecosystem approach. The socio-economic statistics section was largely reorganized, some of which still requires additional work.

16. The Fishery Group meeting also reviewed new developments in data exchange protocols for Vessel Transmitted Information and other fishery operational information, various tools to support data sharing, vessel registries and statistics disseminations. It also noted the collaborative efforts by Eurostat, FAO and ICES to remove discrepancies in production statistics by further enhancing data exchanges and transparency.

### *6.3 Work plan for the next intersessional period*

17. The Fishery Group identified its work plan during the next intersessional period as follows:

- Dissemination of the revised Handbook on the CWP web page;
- Further enhancement of the socio-economic section of the Handbook (lead: Eurostat/DG Mare, core participation: FAO, GFCM, OECD);
- Further elaboration of the Handbook in the newly developed sections, especially on standards for GIS data and geospatial presentation (lead: SEAFO, core participation: CCAMLR, ICES, NAFO, FAO); and
- Collaboration between Eurostat, FAO, GFCM and ICES to further streamline the reporting of national statistics, by harmonizing data reporting formats and enhancing information exchanges among organizations, thus reducing potentially replicated reporting

18. The session acknowledged the progress made by the Fishery Group, and thanked Mr David Ramm for his role in ensuring that the Fishery Group was productive during his tenure as coordinator. The session approved the work plan for the next intersessional period.

## REVISION OF STANDARDS AND CLASSIFICATIONS

### *7.1 Gear classifications*

19. Mr Hans Lassen, the chair of the intersessional ad-hoc working group for drafting the revised CWP gear classification, reported the outcome of the meeting held 19–21 October, 2010 in Rome, Italy, with participation of five CWP member organizations (FAO, GFCM, IATTC, ICES, SEAFDEC), and experts from ICES/FAO Working group on Fish Technology and Fish Behaviour (WGFTFB). The working group agreed to the proposed revision of the CWP International Standard Statistical Classification of Fishing Gear (ISSCFG). The report is in Appendix 5. The intersessional Fishery Group meeting in December 2011 reviewed the outcomes of the meeting and adopted them together with proposed revision of the ISSCFG.

20. The session took note of the outcomes of the ad-hoc working group and agreed the proposed revision of ISSCFG. This would allow the publication of the revised edition of FAO Technical Report 222/Rev.1 (the current version published in 1990) and complete the long-term efforts since 2005 to update the technical contents of this publication.

*7.2 Statistical area*

21. Ms Friderike Oehler of Eurostat informed on the European Commission proposal submitted to ICES to split the ICES Subarea 27.3. The proposal is currently being investigated within ICES to determine possible implications for EU legislation. The proposal also needs to be agreed by the ICES Council and agreed at the Eurostat annual Fisheries Statistics Working Group meeting in October 2013. Once the process is completed, the modification to the subarea would be notified to the Secretary to update the maps in the CWP Handbook. The proposed change is within Area 27 and does not modify any boundary between the FAO Major Areas.

## REVISION OF THE CWP HANDBOOK

22. The session acknowledged that the revision of the CWP Handbook is almost completed, including the modification of CWP International Standard Statistical Classification of Fishing Gear (ISSCFG). The session agreed to proceed to disseminate the revised CWP Handbook through the CWP web site.

23. Recognizing that substantial work is still needed to convert the finalized draft into a web publication, the session adopted the following procedure to prepare for web publication of the Handbook:

- The CWP Secretariat in collaboration with the CWP Handbook coordinator would convert the finalized draft into the format suitable for web dissemination based on the guidance given from the two subject groups;
- The files would be processed section by section;
- Once the file of a certain section has been converted into the format suitable for web dissemination, the Secretariat would place that section on the CWP wiki page (http://km.fao.org/FIGISwiki/index.php/CWP) and request that Members provide final review and clearance of the section; and
- Unless substantive objection was received within one month after the Secretariat's request, the Secretariat would publish the section in the CWP web site as promptly as possible, replacing the relevant old section if necessary.

When the whole of the Handbook is published, the Secretary would formally announce the revised CWP Handbook. It was hoped that this process would be completed by the end of 2013.

24. The Session noted the critical importance of maintaining an on-going process to review and update the Handbook contents, especially in the circumstance where policy priority and corresponding data needs may rapidly expand and evolve to envelop whole aspects of natural and social environments and systems. The session agreed to include "the review of the Handbook contents and identification of emerging statistical needs" as a regular agenda item for future meetings. At the same time, it was recognized that the section on background material could be used to share and exchange information on emerging issues. Members were encouraged to pass such relevant information to the Secretary for upload to the site.

25. The session noted the benefits and desirability of the Handbook to be disseminated in multiple languages, including those other than the FAO official languages. Recognizing strong demands expressed for aquaculture components to be translated in particular into French, Spanish, Russian and Chinese, the session encouraged Members to seek opportunities to mobilize funds to support translation of sections of

interest. When a translated section becomes available, or translated products are identified, Members were requested to promptly notify the Secretary in order that the material could be uploaded to the CWP web page with appropriate disclaimer, especially on limited quality assurance of translated products by the CWP. The CWP agreed that this issue would be reviewed and discussed at the next session.

## OVERARCHING ISSUES

### *9.1 Review of status of "Rules of procedure"*

26. The Secretary reported that a clearance from the FAO Legal Office on the amended text of CWP Rules of Procedure was achieved just prior to the session, after minor modifications that would have no impact on subsistence. However, just prior to the session, the Legal Office also informed that the adoption of the amendment rules required a quorum. Therefore, the CWP was required to defer this discussion to the next session.

27. In order to allow decision making in timely and flexible manner, the Secretary was asked to consult with the FAO Legal Office to explore the possibility of additional decision making mechanisms for the CWP, including presence by proxy, e-attendance, session as e-conference and vote through correspondence, and reflect this in a proposal for amendments to the Rules of Procedure to be discussed at the CWP-25, if appropriate. It was also noted that the paragraph 15 of the CWP Rules of Procedure defined the absence of a Member for three consecutive sessions without notification would be deemed as a withdrawal of membership, though this rule has not been applied in the past. The session agreed on the need to explore more effective operational procedure suitable for the situation of the CWP within the constraints of the FAO administrative rules. This would be discussed at the next session.

### *9.2 Improvement of visibility of CWP*

28. Many members confirmed that a link to the CWP web page was established and that CWP related activities were reported back to their own organization. Members also agreed that the CWP web site should have a web address distinct from that of FAO, The Secretary agreed to investigate the reason why the CWP web address still remains under FAO despite already having purchased an independent address and paying for that. The CWP also recommended that promotion materials including brochure, posters, logos, should be made available from the CWP web site.

## OTHER RELEVANT ISSUES AND ACTIVITIES

### *10.1 Modification of international commodity classifications*

29. The CWP noted that the Harmonized System (HS) classification of World Customs Organization (WCO) is commonly used as a basis for the collection of customs duties and international trade statistics and that it is regularly reviewed every five years. For fish and fishery products, FAO informed that the HS 2012 version, entered into force on 1 January 2012, reflected the work done by FAO with WCO to have an improved specification for species and products forms. At present, FAO is actively continuing its collaboration with WCO for HS2017, in order to further enhance the coverage of species and/or product forms with main focus on shark products, ornamental invertebrates and aquatic algae and plants.

30. The CWP noted that the Central Product Classification (CPC) of UN (http://unstats.un.org/unsd/cr/registry/cpc-2.asp) is a global list of commodities linking to the categories

of activities as well as with HS but has been rarely utilized in fish and fishery products. Since FAO decided to utilize CPC as standard classifications for agriculture production statistics including fisheries and aquaculture, FAO negotiated to improve biological groupings at least to the level comparable to HS and to introduce separation between fishery and aquaculture origins for primary products. This proposal has been accepted in principle by the technical expert group of Classifications, and will be submitted to the United Nations Statistical Commission (UNSC) in February 2013.

***10.2 Global strategy of improving agricultural and rural statistics***

31. FAO informed that the Global Strategy of Improving Agricultural and Rural Statistics (www.ibge.gov.br/home/estatistica/indicadores/prpa/segundo_texto.pdf) that was adopted at the UNSC in 2010 promoted the integration of agriculture (including fishery and aquaculture) statistics into national statistics collection. FAO considered this as an opportunity to enhance comparability of fishery and aquaculture statistics and indicators with those collected and utilized in other sectors. The Strategy was now in its initial phase of implementation with substantial funding in support being raised specifically in Africa and Asia. For application to fishery and aquaculture, FAO was promoting i) disaggregation of 'fishery and aquaculture' from 'agriculture' in the population census question on engagement, ii) active utilization of aquaculture satellite module in agriculture census, and iii) enhanced use and links of administrative information (e.g. licenses), GPS and satellite imagery with the intention to collect frame information, specifically of small holders and operators, to be the solid basis in designing effective sampling scheme. FAO will keep the CWP informed of progress made by this initiative.

***10.3 Environmental indicators***

32. As a part of the System of Environmental Economic Accounting framework (http://unstats.un.org/unsd/envaccounting/White_cover.pdf) that was adopted at UNSC in 2012 as a standard framework to measure and monitor sustainability of various natural resources including fish resources (including farming fish) and water resources, there was continued efforts of establishing the standards of monitoring environmental health and ecosystem services, While the progress was relative slow and contained many issues not relevant to fishery and aquaculture, FAO would keep inform the progress to the session.

## MEETING ARRANGEMENTS FOR CWP–25

33. The CWP has held recent past sessions at intervals of approximately three years, with one intersessional meeting between each session. This schedule was generally preferred, and the CWP tentatively agreed to hold CWP-25 in three years, i.e. by early 2016. Any organization interested in hosting the next session was requested to inform the Secretary.

34. The session noted that the Fishery Group tentatively agreed on convening the next intersessional Group meeting in Swakopmund, Namibia, in early 2015, hosted by SEAFO.

35. The Aquaculture Group intended to hold the Group meetings in conjunction with the FAO COFI Sub-Committee on Aquaculture, more specifically the first meeting in St Petersburg, Russian Federation, in October 2013 and the second meeting probably around the same time in 2015.

## ANY OTHER BUSINESS

36. The CWP noted that Mr Richard Grainger, previous Secretary of CWP, would retire in April 2013. The session expressed its gratitude for his long years service and dedication to the CWP.

## ADOPTION OF REPORT AND CLOSE OF THE MEETING

37. The participants expressed their gratitude to the Secretary of CWP, for acting as rapporteur and for her dedication in supporting the 24th session. The report was adopted on Friday 8 February 2013, and the meeting was closed.

**APPENDIX 1**

## LIST OF PARTICIPANTS

| Participants | CWP-AS | CWP - FS | Main Session |
|---|---|---|---|
| **Benguela Current Commission (BCC)**<br>HAMUKUAYA, Hashali<br>Executive Secretary, BBC and Chairperson of the African LME Caucus<br>Private Bag 5031, 1 Strand Street, Swakopmund, Namibia<br>Tel: +264-64-406 901 - Fax: +264-64-406 904<br>Email: hashali@benguelacc.org<br>(FAO Nominee) | | ✓ | ✓ |
| **Commission for the Conservation of Antartic Marine Living Resources (CCAMLR)**<br>RAMM, David<br>Data Manager<br>PO Box 213, North Hobart 7002, Australia<br>Tel: +61 3 62310556 - Fax: +61 3 62349965<br>E-mail: david.ramm@ccamlr.org<br>(CCAMLR Nominee, CWP-23 Chair) | | ✓ | ✓ |
| **European Commission, Directorate-General for Maritime Affairs and Fisheries (DG MARE)**<br>CALVO-SANTOS, Angel-Andres<br>European Commission<br>B-1049 Brussels<br>Tel: + 32 2 299 11 11 - Fax: + +32 2 299 30 40<br>E-mail: Angel-Andres.CALVO-SANTOS@ec.europa.eu<br>(Eurostat Nominee) | | ✓ | |
| **Eurostat**<br>TRONET, Vincent<br>Head of the Agriculture and Fisheries Production Statistics Section<br>European Commission-Eurostat, E1<br>BECH-C3/607, 5, A. Wiecker, L-2721, Luxembourg, Grand Duchy<br>Tel: +352 4301 32906 - Fax: +352 4301 37318<br>E-mail: Vincent.Tronet@ec.europa.eu<br>(Eurostat Nominee) | | ✓ | ✓ |
| **Eurostat**<br>OEHLER, Friderike Ms<br>Statistical Assistant, Fisheries Statistics, European Commission-Eurostat E1<br>BECH-C3/616, 5, A. Wiecker, L-2721, Luxembourg, Grand Duchy<br>Tel: +352 4301 35088 - Fax: +352 4301 37318<br>Email:Friderike.OEHLER@ec.europa.eu<br>(Eurostat Nominee, CWP-24 Chair) | ✓ | ✓ | ✓ |

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| **General Fisheries Commission for the Mediterranean (GFCM)**<br>DE ROSSI, Federico<br>Data Compliance Officer<br>Palazzo Blumenstihl, Via Vittoria Colonna 1, 00193, Rome, Italy<br>Tel: +390657053481 - Fax+390657056500<br>E-mail: federico.derossi@fao.org<br>(GFCM Nominee) | | ✓ | |

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| **South East Atlantic Fisheries Organization (SEAFO)**<br>VAN ZYL, Ben<br>Executive Secretary<br>Swakopmund, Namibia<br>Tel: +264 64 406 885 – Fax: 264 64 406 884<br>E-mail: bvanzyl@seafo.org<br>(SEAFO Nominee) | | ✓ | ✓ |
| **South EastAtlantic Fisheries Organization (SEAFO)**<br>CAMPANIS, George<br>Data Manager<br>Swakopmund, Namibia<br>Tel: +264 64 406 885 – Fax: 264 64 406 884<br>E-mail : gcampanis@seafo.org<br>(SEAFO Nominee, CWP-24 Chair) | | ✓ | ✓ |
| **CWP Secretariat**<br>TSUJI, Sachiko Ms<br>Senior Statistician, Statistics and Information Service (FIPS), FAO<br>Via delle Terme di Caracalla, 00153 Rome, Italy<br>Tel: +3906 5705318 - Fax: +3906 57052476<br>E-mail: Sachiko.Tsuji@fao.org<br>(CWP Secretary) | ✓ | ✓ | ✓ |
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**APPENDIX 2**

# INTEGRATED AGENDA OF THE 24th CWP SESSION ON FISHERIES STATISTICS (Rome, Italy, 5–8 February 2013)

**Aquaculture Group Meeting**

**Afternoon, 5 February 2013**

1. Opening and welcome, logistic arrangements

   *The CWP Secretary shall open the Aquaculture Group meeting and will provide information on meeting logistics and other administrative arrangements.*

2. Selection of Chair
3. Adoption of the Agenda
4. Review of progress since the CWP/AS-2

   *The Secretary and participating organizations briefly report major activities and changes occurred since the CWP/AS-2.*

   4.1. Review of progress in recommendations of the CWP/AS

   4.2. Review of activities by CWP participating organizations

5. Finalization of draft for the aquaculture component of the CWP Handbook

   *The meeting should review and agree the final draft of the aquaculture component of CWP Handbook for submission to the CWP-24.*

6. Minimum data reporting and new standard questionnaires
7. Strategy-STA

   *Relevant organizations to report the progress in developing regional coordination of aquaculture activities including preparation of the Regional Workshop to identify capacity building need. The meeting will review the progress and agree on the area of collaboration and work plans to be incorporated into the discussion under Agenda 8.*

   7.1. Report of Regional Workshop for Pacific Island countries and territories (*FAO/SPC to lead*)

   7.2. Work plan

8. Work plan for 2013-2016

   *The Meeting should discuss and agree on a work plan of Aquaculture Group for the submission to CWP24.*

9. Selection of Aquaculture Group Coordinator(s)
10. Other business
11. Close of the Aquaculture Group meeting

**APPENDIX 2**

**Fishery Group Meeting**

**6 February and morning of 7 February, 2013**

1. Opening of the meeting

   *The CWP Secretary shall open the Capture Fishery Group meeting and will provide information on meeting logistics and other administrative arrangements.*

2. Adoption of the Agenda

3. Review of progress since CWP-23

   *The Secretariat and participating organizations briefly report major activities and changes occurred since the previous Intersessional Capture Fishery Group Meeting in 2011.*

   3.1. Review of progress in recommendations of CWP-23 and other activities of CWP

   3.2. Review of activities by participating organizations

4. Revision of the CWP Handbook

   *The meeting should review and agree the final draft of the aquaculture component of CWP Handbook for submission to the CWP-24.*

   4.1. Catch/Effort related component

   4.2. Vessels/Gear related component

   4.3. Social and Economic component

   4.4. Ecosystem monitoring, impacts on ecosystem

   4.5. Overall structure

5. Review and revision of standards, concepts, and codes

   5.1. Global standards on vessel transmitted information

   5.2. International codes for fishing effort

6. Methodology, tools and emerging data needs

   *The Meeting is invited to comments on a range of tools that are presented during side events, if necessary. Additional points should be raised and discussed, if any.*

7. Integrating the regional databases

   7.1. Efforts to remove data discrepancies

8. Work plan for 2013-2016

   *The Meeting should discuss and agree on a work plan of Capture Fishery Group for the submission to CWP24.*

9. Selection of Capture Fishery Group Coordinator(s)

10. Other business

11. Close of the Capture Fishery Group meeting

**APPENDIX 2**

**Session Meeting**

**Afternoon, 7 February 2013 and afternoon, 8 February 2013**

1. Opening and Welcome, practical arrangements
2. Adoption of the Agenda
3. Election of chair and vice-chair
4. Review of Membership

   *The Secretariat will report the changes in memberships since the CWP-23.*

5. Aquaculture Group activities
   *The Aquaculture Group coordinator(s) will report the activities and achievement made since the CWP-23, together with the issues required endorsement by the CWP session and work plan for the next intersessional period. The meeting should review those issues listed under 5.2 and endorse them if appropriate as CWP decision. The meeting should also review and discuss on the work plan proposed.*

   5.1. Report of inter-sessional activities

   5.2. Points required endorsement by the CWP Session

   5.3. Work plan for the next intersessional period

6. Capture Fishery Group activities
   *The Capture Fishery Group coordinator(s) will report the activities and achievement made since the CWP-23, together with the issues required endorsement by the CWP session and work plan for the next intersessional period. The meeting should review those issues listed under 6.2 and endorse them if appropriate as CWP decision. The meeting should also review and discuss on the work plan proposed.*

   6.1. Report of intersessional activities

   6.2. Points required endorsement by the CWP Session

   6.3. Work plan for the next intersessional period

7. Revision of standards and classifications

   7.1. International Statistical Standard Classifications of Fishing Gears (ISSCFG)
   *The meeting will review and endorse, if appropriate, the revision drafted by the CWP ad-hoc group for developing the draft revision of CWP gear classification.*

   7.2. Statistical Area
   *Participating organizations may report modification in the definition of subareas within its relevant FAO Major Statistical Area. The meeting will discuss if any modification on the boundary of FAO Major Statistical Area is proposed by participating organizations.*

   - Issue the Skagerrak and Kattegat areas (Area 27.3a)
     *ICES and Eurostat will report the issues regarding the codifications and boundaries issues of the Skagerrak and Kattegat areas that correspond to FAO Area 27.3a and current status of on-going discussion. This is information only.*

8. Revision of the CWP Handbook
   *The meeting will review and endorse, if appropriate, the draft submitted by the Aquaculture Group.*

   8.1. Aquaculture Component

   8.2. Other component

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8.3. Dissemination and future updates of CWP Handbook

9. Overarching issues

9.1. Review of status of "Rules of Procedure"
*Secretary will report the current status of CWP Rules of Procedure and seek for further advices from the meeting specifically based on experiences with new arrangements since CWP-23.*

9.2. Improvement in visibility of CWP
*Member organizations and Secretariat to report their effort made since CWP-23.*

10. Other relevant issues and activities

10.1. Modification of international commodity classification, HS of WCO and CPC of UNSD (FAO: *information only*)

10.2. Global Strategy of Improving Agricultural and Rural Statistics (FAO: *information only*)

10.3. Environmental indicators

11. Meeting arrangement for CWP-25, AS and CS Group sessions and other intersessional meetings. – Needs, time and venue
*The meeting to decide tentative schedule of activities until the time of CWP-25*

12. Any other business

13. Adoption of report [afternoon of 8 February, 2013]

14. Close of the meeting

**APPENDIX 3**

# REPORT OF THE 24th CWP SESSION ON FISHERIES STATISTICS – AQUACULTURE GROUP MEETING (Rome, Italy, 5 February 2013)

## 1. Opening of the meeting:

The third meeting of the Coordinating Working Party on Fishery Statistics Aquaculture subject Group (CWP-AS) was held on 5 February 2013 in Rome, Italy. This meeting was held in conjunction with the 24th session of CWP based on agreement taken by the 23rd session of CWP. The meeting was attended by the three CWP participating organizations (Eurostat, FAO and GFCM) as well as by Mr Lassen, the CWP Handbook coordinator. The list of participants is in Appendix 1 of the CWP-24 session report.

## 2. Election of Chairs:

The SEAFDEC and FAO are currently acting as the coordinators of the Aquaculture Group. Due to the absence of SEAFDEC, the meeting elected Mr Jia of FAO as the Chair of this meeting.

## 3. Adoption of agenda:

Draft Agenda was adopted without modification, which is in Appendix 2 of the CWP-24 session report.

## 4. Review of progress since the CWP/AS-2:

The Secretariat reported that the task as CWP/AS since the 2nd meeting has focused on further improvement of draft of the Aquaculture component of CWP Handbook on Fishery Statistics. The draft was substantially reduced in size and restructured following the instruction given. However, due to low response from member countries, late delivery of comments and several issues unresolved, the draft was not yet distributed for comments from countries. The newly updated version was tabled to this meeting for final review of the Group.

FAO, GFCM and Eurostat reported their main activities and progress relating to aquaculture statistics. The reports were summarized in Appendix 7 of the CWP-24 session report. In the discussion it was noted that in case of overlap of data collection, Eurostat, GFCM and FAO would collaborate in order to reduce the reporting burden of member states and to improve data quality and consistency, by trying to harmonize data reporting and by enhancing information exchanges among organizations.

## 5. Finalization of draft for the aquaculture component of the CWP Handbook:

The meeting reviewed the version prepared by the Secretariat and discussed focusing on the remaining issues. While the meeting would take the decision on the remaining issues, it was agreed that the conclusions of the meeting would be consulted with the other members and experts participating to the Group for final confirmation through correspondence prior to the dissemination of the Handbook.

The meeting noted that the definition of “aquaculture” was vigorously discussed at the Ha Long Bay meeting with a broad range of audience and should not be revised. Especially, the meeting reconfirmed the “ownership” of target organisms as key importance in defining “aquaculture”.
After discussion, the meeting agreed the following five categories to be used for statistical purpose:

- Ponds
- Cages, raceways, tanks, enclosures, pens,
- Lake, reservoirs, dams, barrages, flood plains, irrigation systems

- Rice-fish paddies (rice fields used for aquaculture)
- Suspended/hanging systems, on-bottom systems, off-bottom systems

Regarding the measurement of facilities, the meeting reconfirmed to use the "area" as primary common measurement, with the recognition that "area" should be defined as whole area being occupied by farming system. The sentence to clarify should be added in the draft.

After reviewing the table of examples on whether production to be allocated to capture production or aquaculture production, the meeting considered that the definition of "culture-based fisheries" should be limited to those having inputs of cultured seeds (to be more specific, seeds produced from aquaculture). However, the importance to include this definition itself was questioned, especially together with description on all type of cultured seed inputs, e.g. restocking, stock enhancement and ranching. It was agreed to seek for further opinion from Fishery Group. Regarding the table of examples, it was agreed to remove "Private ponds" and modify "Ponds" to "Ponds (including inter-tidal ponds)".

In general, the meeting considered it appropriate to limit the content of Handbook to those components well established in methodology to collect and utilize the information. Then, the sections that do not provide concrete guidance would be handled as supporting materials, not as the main components of the Handbook. In the same context, while the importance of information on aqua-feed (volume and cost) in order to measure the feed use for aquaculture sector was highlighted, the meeting considered that at this stage it may be too early to consider the inclusion of data collection on feed in the Handbook taking into account the lack of experience in aggregating the information on aqua-feed use either at national and regional level. It was therefore, agreed to encourage the member organizations to undertake case studies on collection and utilization of feed information and to share the results of such studies for future consideration on possibility to develop proper feed indicator. The meeting agreed to submit the final draft to the CWP-24 session with incorporation of the amendments agreed above and subject to the confirmation from the Group members and experts not attending to this meeting.

**6. Minimum data reporting and new standard questionnaires**

The meeting confirmed the list of minimum data reporting in the draft Handbook and agreed that the new standard questionnaire should be developed during intercessional session (2013) based on minimum reporting requirement as above.

**7. Strategy-STA:**

FAO in collaboration with SPC (Secretariat of the Pacific Community) organized an FAO/SPC Regional Workshop on Aquatic Biosecurity and Aquaculture Data and Statistics in the Pacific Region, 1-6 October 2012, Nadi, Fiji with the participation of 20 Pacific islands countries and territories (PICTs). The workshop discussed on aquaculture data needs and capacity building in the Region, together with issues on bio-security and biodiversity and agreed on a process for the implementation of Strategy-STA (Status and Trends of Aquaculture) in PICTs for improving aquaculture data collection, compilation, analysis and reporting, including methodologies, standards and institutional arrangements.

**8. Work plan for 2013–2016:**

The meeting confirmed its intention to hold the Group meetings in conjunction with FAO COFI Sub-Committee of Aquaculture. This indicated to expect to hold two meetings during the next intersessional period, with the first one in St Petersburg, Russian Federation, 7-11 in October 2013 and the second one probably around the same time in 2015.

The meeting agreed that the Group would focus on the following tasks in the next intersessional period:

**APPENDIX 3**

- Dissemination of Handbook with adequate language coverage;
- Revision of standard questionnaires and development of guidelines in line with the new Handbook;
- Continuing efforts to implement Strategy-STA, with special focus on coordination and collaboration to mobilize funding and when funds become available to implement activities including regional meetings and follow-up actions;
- Encouraging members to conduct case study for data collection and analyses of feeds and sharing the results;
- Enhancing regional consultation among Members as well as with partners in a Region;

The Task Force was established for developing new standard aquaculture (AQ) questionnaire and corresponding guideline with FAO (FIPS) as leading organization and participation of Eurostat, GFCM and SEAFDEC at least as minimum desirable core participation. The draft Terms of Reference for the Task Force is as follows:

Within the overall objective of revising the AQ questionnaire to be aligned with the CWP Aquaculture Handbook, the Task Force shall perform the following activities:

- Review the AQ questionnaires that are currently in use by the CWP Member to compare them to identify gaps and overlaps from the minimum data reporting indicated in the CWP Aquaculture Handbook ;
- Develop the zero draft of a standard AQ questionnaire in light of the minimum data reporting referred in the CWP Aquaculture Handbook for discussion at the Aquaculture Group meeting in October 2013 as well as for the review by the selected experts;
- Develop draft guideline to support the use of the AQ questionnaire in a close cooperation with the other members of Aquaculture Group and relevant experts;
- Examine the feasibility of the draft standard questionnaire and the utility of the draft guideline with selected countries;
- Revise the draft AQ questionnaire and guideline taking into consideration the comments and feedback received;
- Present the revised draft standard AQ questionnaire and guideline to concerned countries for their review and feedbacks at the time of COFI Sub-Committee of Aquaculture in 2015;
- Further discussion at the CWP Agriculture Group meeting in 2015 to identify the remaining substantial issues and their potential solutions;
- Finalize the draft AQ questionnaire and guideline at the CWP Aquaculture Group meeting prior to the 25th session of CWP on Fishery Statistics for submission to the main session.

**9. Selection of Aquaculture Group Coordinator(s):**

The meeting tentatively elected Eurostat and GFCM to be the Group Coordinator(s) for the next intersessional period, subject to the approval and committed support from their own organizations.

**10. Other business:**

There was no other business.

**11. Close of the meeting:**

With the agreement that the Report will be adopted through communication, the meeting was formally closed.

**APPENDIX 4**

# REPORT OF THE 24th CWP SESSION ON FISHERIES STATISTICS – FISHERY GROUP MEETING (Rome, Italy, 5 February 2013)

## 1. Opening of the meeting

The 24th session of Coordinating Working Party on Fishery Statistics (CWP), Capture Fishery subject Group meeting (CWP-FS) was held on 6-7 February 2012 in Rome, Italy. Mr Ramm, the Coordinator of the Group, opened the meeting. The meeting was attended by the 14 experts from eight CWP participating organizations (CCAMLR, Eurostat, FAO, GFCM, ICCAT, ICES, NAFO, SEAFO). Additional participants were Mr Hamukuaya, representing the Benguela Current Commission and Mr Al Jabri of Ministry of Agriculture and Fisheries Oman, representing the Regional Commission for Fishery (RECOFI) under the nomination of FAO, Mr Calvo-Santos of European Commission, Directorate-General for Maritime Affairs and Fisheries (DG MARE), under the nomination of Eurostat, and Mr Lassen, the CWP Handbook coordinator. The list of participants is in Appendix 1 of the CWP-24 session report.

This was the first CWP session after establishing two subject groups at the 23rd CWP session. Following the "Operational guidelines corresponding to the establishment of two subject groups" (Appendix 5 of the CWP-23 Report), the Fishery Group and the Aquaculture Group held their Group meetings in conjunction with the CWP 24th session. The objective of the meeting was to finalize and summarize the intersessional activities of the Group and its achievements, and develop the proposal of terms of reference and work plan for the subsequent intersessional period to report to the CWP session.

## 2. Adoption of the Agenda

The CWP Secretary explained that out of agenda items covered by the session previously, all the items of technical nature were transferred to the Group meeting. The agenda was adopted without change (Appendix 2 of the CWP-24 session report).

## 3. Review of progress since CWP-23

The CWP Secretary summarized the achievements on recommendations of the CWP-23 as indicated in Appendix 6 of the CWP-24 session report.

Each Member Organisation reported on progress since CWP-23 (Appendix 7 of the CWP-24 session report).

## 4. Revision of the CWP Handbook

Mr Lassen introduced the agenda by outlining the scope and overall structure of the revised CWP Handbook. The role of the CWP Handbook is to provide guidance to set up data collection and statistical system for fishery and aquaculture. Then, the Handbook should cover standard concepts relevant for fisheries and aquaculture statistics, either those CWP adopted as an organization specialized for fisheries and aquaculture statistics or those internationally adopted (e.g. UN Statistical Committee) and utilized in broader context, as well as methodological issues, and minimum as well as desirable data needs. Taking a benefit of web-dissemination, he suggested to clearly separate two components, the core of the Handbook providing well established standards and solid guideline and the components archiving background materials including references, supporting materials, case studies, success stories and examples of failure, argument of emerging issues and so on, with enhanced search engines and links.

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As overall structure, the four large categories were identified, i.e. general methodological issues (e.g. confidentiality), general and commonly used concepts (e.g. nationality, species, etc.) and capture fisheries component and aquaculture component.

The meeting then reviewed the list of sections that were identified as no fundamental revisions would be required and confirmed his conclusion in general. This included the sections on B: Catch and landing statistics, C: Nationality, D: Country or Areas, E: Time unit, G: Fishing Areas – General, H: Fishing Areas for statistical purpose, I: Conversion factors, N: Fishing efforts, O: logbooks, P: Supply balance sheets on apparent consumption, R: Fishery commodities classifications and S: Identifiers for aquatic animals and plants. Points noted included:

- Section B: Catch diagram was decided to replace with the newly developed one after incorporating subsistent use in diagram.
- Section D: The current area data breakdown and coding are not completely satisfactory but no immediate revision would be planned;
- Section H: Fishing Areas for statistical purpose – inconsistencies in terms referring sub-areas within the FAO Major areas. It was agreed to change the name of " FAO Major Fishing Area" to "FAO Major Area" to apply the same code for aquaculture harvest location.
- Section I: Conversion factors – quick review of text to ensure that the problems in applying conversion factors are well noted
- Section O: Logbook – incorporate sentence on Vessel Transmitted Information
- Section P: Supply balance sheets on apparent consumption – while this
- The revision in the section on Gears and Fishing Vessels were already agreed at the previous Group meeting.
- Section T: Statlant, Statpac, Fishstat system of questionnaires – no need to keep.
- Section U: Use of FAO Yearbook of fishery statistics – to move to the background archive.

It was agreed to introduce new sections on confidentiality, data required for fish stock monitoring and assessment and fisheries statistics for ecosystem approach. For the latter two sections, the group accepted the final draft that Mr Lassen prepared based on inputs from the designated groups.

Confidentiality was newly proposed section. The meeting noted that there are two types of confidentialities, one for protecting micro data containing information on individual identifications and the other applied in aggregated statistics by national policies. Both are important but the latter increasingly became problem in securing consistency and reliability of regional and global statistics. While fully aware that the confidentiality is national policy decision that may be out of control by statistical agencies, the meeting agreed it important to clearly indicate the problems in statistics and make efforts to establish a basic rule in applying confidentiality as well as mitigating problems. The draft text was agreed after modifications.

It was considered that section on socio-economic statistics would require quite substantive review and enhancement. Specifically, Section K: Fishers was decided to re-draft to generalize to include aquaculture and processing component under the title of "employment". The designated group on the socio-economic section agreed to focus this round revision to define broadly accepted basic concepts in three areas, integrated environmental and economic accounting for fisheries, economic indicators and employments. However, further works definitely needed and it was agreed the group would continue to elaborate the section of socio-economic statistics in the next intersessional period. Main target would to provide more pragmatic guidance on how to apply the basic concepts in the context of fishery and aquaculture.

Macro indicators are broadly used especially in socio-economic analysis, but also for food security monitoring and assessment. While it was consider important not to mix up statistics and derived indicators, the meeting noted the value to include clear description and principle calculation methods of such indicators in the context of fishery and aquaculture, recognizing the main focus of the Handbook should remain on statistics. Value added, resource rent and profit ratio to investment may be potentially useful indicators to cover.

With the understandings that the Secretariat in collaboration with the Handbook coordinator would make final editorial adjustments to the texts of individual sections following the guidance given above as well as the agreements made at the intersessional Fishery Group meeting in 2011, the meeting accepted the existing version of revised draft. Finalized sections would be reviewed and cleared by all Members as indicated in Section 8 before dissemination.

## 5. Review and revision of standards, concepts, and codes -- Global standards on vessel transmitted information (VTI)

Mr Taconet reported that through the iMarine initiative, FAO is collaborating with DG Mare to establish a standard data exchange protocol for fisheries operations data, called FLUX (Fisheries Language for Universal eXchange). This standard will facilitate exchange of data relating to electronic logbooks between Flag States and other parties, including the relevant RFMOs. This standard is eventually meant to cover the full spectrum of VTI during fishing activities and at arrival to and departure from ports, including e-logbooks, observers on board, daily catch reports, landings reports, inspection at sea and ports, and other VTI. Ideally the standard would also cover collection of scientific data on board of fishing vessels. A goal identified for this collaboration would be to upgrade this standard to be a global standard under UN/CEFACT, a UN standards setting body. The present communication seeks to gauge the interest of CWP members to contribute to the development of such standard.

It was noted that some Member including NEAFC and SEAFO were involved in the activities of UN/CEFACT and others utilizing the similar mechanisms. CCAMLR also expressed interest in being involved in the initiative. While the previous CWP discussion indicated difficulty and reluctance to unifying data transmission format, harmonization of contents, e.g. standard codes, definitions, and concepts, would benefit substantially to facilitate data exchange among different systems.

## 6. Methodology, tools and emerging data needs

FAO sought feedback from the Members on software and database tools presented at a side event, GIS tools to assist with the re-allocation of historic catches to EEZs in selected regions, Integrated Catch Information System, FishStatJ management console, and Vessel Record Management Framework. Corresponding to question, FAO confirmed that FishStat plus would be no longer supported and replaced with FishStatJ. All of those tools envisaged assisting data sharing and harmonization and FAO stressed its wiliness to provide help for their utilization.

## 7. Efforts to remove data discrepancies

The collaborative efforts among Eurostat, FAO and ICES lead to high level of transparency and data sharing among three organizations that helped to reduce the data discrepancies, though there were still further areas of improvement. Recognizing a substantially common ground addressing specific reporting obligations between Eurostat and GFCM, it was suggested to extend collaboration including GFCM.

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## 8. Work plan for 2013–2016

Work plan for the next intersessional period:

- Dissemination of the revised Handbook at the CWP web page;
- Further enhancement of socio-economic section of the Handbook (lead: Eurostat/DG Mare, core participation: FAO, GFCM, OECD);
- Further elaboration of the Handbook in the newly identified area, especially on GIS standards and geographical presentation (lead: SEAFO, core participation: CCAMLR, ICCAT, NAFO, FAO)
- Eurostat, FAO, GFCM and ICES to collaborate for further streamlining national statistics reporting, by harmonizing data reporting formats and enhancing information exchanges among organizations, thus reducing potentially duplicated reporting

As the mechanism to clear for the dissemination of revised Handbook, the meeting would propose the following for consideration of the CWP-24:

- CWP Secretariat in collaboration with the CWP Handbook coordinator to convert the agreed draft into the format suitable for dissemination at web and upload to the CWP wiki page for final review and clearance by Members;
- Unless substantive objection would be received during one month after upload of the section, the Secretariat will transform the cleared section to the proper format for dissemination in CWP web and disseminate as prompt as possible;
- Conversion and upload of files will be done section by section, targeting to complete the revision before the end of 2013;
- On completion of dissemination of whole sections, the Secretariat would formally announce the revision of CWP Handbook.

## 9. Other business

The meeting briefly discussed on possible timing and venue of the next intersessional Group meeting and of the CWP-25. It was informed that the SEAFO invited the 9$^{th}$ session of FIRMS Steering Committee to Namibia. The meeting generally considered the availability of Members for participation as the first priority and requested the Secretariats of CWP and FIRMS to figure out the period for each Member having difficulty to participate.

## 10. Report adoption

With the agreement that the Report will be adopted through communication, the meeting was formally closed.

**APPENDIX 5**

# REPORT ON AD HOC GROUP FOR DEVELOPING THE DRAFT REVISION OF CWP GEAR CLASSIFICATION (Rome, Italy, 19–21 October 2010)

1. CWP-23 (para 39–40) reviewed the preparation of revised text for the CWP Handbook and ICES/FAO agreed to coordinate on the sections related to vessels/gear that include the section of fishery fleet, fishing gear classification and fishing efforts . It was agreed that the progress inter alia would be reviewed at the intersessional fishery group meeting now planned for December 2011.

2. CWP-23 recommended establishing an Ad hoc group for developing the draft revision of CWP gear classification (the International Standard Statistical Classifications for Fishing Gear (ISSCFG)). Terms of reference are found in Annex II. The meeting took place at FAO headquarters, 19–21 October 2010. The list of participants is found in Annex I. The agenda is given in Annex III.

3. Sachiko Tsuji (FAO) opened the meeting and Hans Lassen (ICES) was elected chair. FAO agreed to act as rapporteur. The Chair made a tour-de-table at which the participants presented themselves.

4. They noted that the document this meeting is starting to prepare will be a part of the CWP Handbook and Fisheries Statistics Standards.

5. The ICES/FAO Working group on Fish Technology and Fish Behaviour (WGFTFB) had presented a proposal (November 2009) for a revised classification and was invited to present this proposal. This was done by Richard Ferro as one of the authors.

6. The WGFTFB proposal is based on two main considerations: 1. The physical characteristics of the gear, 2. The operational aspects, the way the gear is set, as part of the characteristics of that gear.

7. Richard Ferro indicated that in the eyes of WGFTFB for the work requested by CWP at least 3 main constraints had to be considered,

a. The classification was to be organized in a 2 level system letting the other levels be up to the countries and/or organizations to decide upon.

b. No gears were to be associated with target species.

c. There was the need to keep the structure of the classification the most similar to the current one, which meant keeping existing gear categories as much as possible.

8. The meeting thanked WGFTFB for this valuable input and agreed to use this proposal as reference to orient the discussion. The meeting agreed that the classification should define the standard at a global, international level, and leaving the finer details to national scales. This implied an overarching level and just 2 levels seemed appropriate. While this leaves the rest of the levels to regional/national needs and decisions at the same time, many regional organizations and/or countries would like to share a common coding system as well. There is therefore a fine balance to be struck.

9. Bundit Chokesanguan presented a set of Gear pictures (work still in progress) that helped to clarify doubts about set gillnets and fix gillnets, as well as set longlines and vertical-set lines.

10. The meeting had at its disposal the gear code lists used by the regional fisheries organisations. The meeting made numerous references to these code lists during the discussions. The meeting agreed that whatever information regions or countries have should be translatable to ISSCFG.

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11. The meeting had input through two phone conferences:

a. with Mr Carlos Palma and Mr Mauricio Ortiz, ICCAT Secretariat. Some issues already discussed by the group were raised and notes were taken about those concerns. The conference also provided some clarifications on ICCAT use of categories.

b. with Mr Ricardo Federizon, NAFO Secretariat, Dartmouth, Nova Scotia, Canada. Some issues already discussed by the group were raised and notes were taken about those concerns. The conference also provided some clarifications on NAFO categories.

12. There was disagreement among the meeting participants to the concrete WGFTFB proposal. It was argued that the proposal was biased towards gear technology usage while the use for statistical purposes was not fully appreciated. Issues dealt with, for instance. problems arising from combining gears in order to maintain time series, but later needing to split the capture by guessing proportion caught by each. The need of independently consider the gear, without regard to target species, was also questioned although recognising that in some cases, as arctic shrimp gear, in fact this reference can be omitted without loss of information as that gear is used to capture only shrimp.

13. The meeting made an in-depth analysis of the proposed classification. Questions considered included

a. What distinguishes a gear category from another? and what is establishing what and/or how a new category of gear comes about: Characteristics of use?, or of operation?, target species?

b. Should we be considering the operation as one way to define different gears?

c. The gear technology is focusing on the capture process while ecosystem based assessment include the habitat and other ecosystem impacts as well. It is therefore a consideration if the classification should take such concerns into account.

d. A suggestion was made about eliminating common names already incorporated. For instance, to delete 'lampara' for the Mediterranean, because the name does not relate to the gear itself but to the way it is used, and therefore rather indicates a fishing method. That is why it should be remove so it would not create confusion (Matthew).

e. A particular discussion issue was how to include auxiliary devices (excluders, selective, mitigating) used with gears. EU legislation considers them as important and specifies those types of gears, and modifications, as they are legal devices. They change every year and there would be no way to include them in this standard list. There could be an additional column in which modifications could be indicated.

A quick list of ancillary elements that may operate along with given gears was put together as a way to incorporate this issue into further developments. They were further grouped roughly under two main headings.

A. Those aimed at enhancing capture: Fish Attractants such as FADs (palm leaves), acoustics, lights, light sticks, bait (chum); Observational enhancers such as air spotting (helicopters, planes); acoustic devices (sonars, echo-sounders, bird radars); Satellite data

B. Those aimed at mitigating unwanted impacts: Avoiding devices such as TEDs, bird / mammals avoiding devices, line shooters, tori-poles; Special hooks (circle, fast dissolving); Deterrents such as pingers; Escape hatches; Selectivity windows; Grates

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**Codes and naming**

14. The meeting agreed on the need for both a numerical as well as a three alpha identifier. Many countries have expressed their wish to avoid dealing with numeric codes, and it is suggested to CWP to emphasize the alpha coding as the one recommended.

15. There is a need for a common name for each category. As CWP operates under English as main language such common names would be in English. However, the CWP standard may well give names also in other languages. The global list would go beyond CWP, but it might be the FAO the one to put it in as many different languages as possible.

16. Common names that would be meaningful to users are to be preferred, but noting the existing standard that has defined language usage to a large extent.

17. The meeting considered if common local names should be incorporated in a manner similar to the ASFA species list, so different people from different places would understand what they refer to? The main use of the classification is for exchange of data between administrations and for publishing statistics and the need for usage of local name for this purpose was not considered too great.

18. The numeric coding should be revised thoroughly; FAO and ICES will review the system and make a proposal for the intersessional meeting. Attention should be paid to who is using the numeric coding and for what purposes. GFCM uses those codes, the main ones 01.0.0; 02.0.0, etc. to indicate the major types of gears. So there would be no problem in changing lower level coding.

**Presentation of the gear classification**

19. The meeting distinguished two presentations. One would be the Table and Introduction in the Handbook of Fisheries Statistics Standards and the other is the update of the Fisheries Technical paper[1] relevant to ISSCFG.

20. The document this meeting is starting to prepare will be a part of the CWP Handbook.

21. The FAO Document (Technical Guidelines) and the gear section of the Handbook should be coordinated.

22. The FAO Document should include as many levels as the authors deem necessary to cover the subject, but they should not be bound by the CWP international classification. For instance although the CWP Classification may drop the two purse seine categories PS1 and PS2, the FAO document may not need to do that. The FAO task will be to update the old publication already in 3 languages with the state of the art of the gear standardization.

23. The introduction to the section in the Handbook need to include some of the history, why was it necessary to review and update the existing classification. The list in the Handbook should be available at least in 3 languages, English, Spanish, French. It might be tricky to use some names in some languages (e.g. lampara, boliches) and not in other languages.

24. The meeting reviewed the presentation of the gear classification in the FAO Fisheries Technical Paper 222 and the thoughts presented for how best to update this document. The text prepared by FAO was produced for different purposes, people could have very different knowledge and understanding of the subject, but it will need to be amended to incorporate the changes brought about by the CWP.

[1] Claude Nédélec and J. Prado 1990. Definition and classification of fishing gear categories FAO FISHERIES TECHNICAL PAPER No. 222/Rev 1

**APPENDIX 5**

25. The suggestion was made that that for CWP there should be a similar document to the one from FAO, where definitions of the categories could be detailed, and definitions of the alpha and numeric codes should be provided if applicable. Examples pertinent to different languages should be provided when translated to other than English. However, in the original general document in English there should be references to the different names given to the gear in different parts of the world. The document emanating from CWP should have an introduction indicating why and how this standardization should be useful. It should make references at how to handle gear modifications. Including indications how national classification (coding) systems could be constructed and organized in relation with the global classification. However, after consideration it was considered that several of these points could better be included in the Handbook Introduction and that there would be significant overlap with the Fisheries Technical Paper.

**Draft proposal**

26. The meeting developed a draft proposal based on WGFTFB proposal and the 1980 ISSCFG. This proposal was discussed and amended. The final proposal is presented in Annex IV.

27. Hans Lassen, working as FAO consultant, will develop the Introduction for the section in the Handbook to this proposal for presentation and discussion at the intersessional 2011 CWP meeting.

**Conclusions**

28. The meeting concluded that the ISSCFG should be a two level classification for international (Global) purposes, while beyond the two levels the subdivisions may respond to national / regional needs and characteristics. ISSCFG would include a prescription for extension of the code for national or regional use.

29. The meeting decided to remove ‘Recreational fishing’ as a Gear Category since most gears used could also be considered within the classes already included.

30. It would be preferably to have just one level, PS, for the global level and leave PS1 and PS2 for national levels. So there will a distinction between the two levels and their contents.

31. The meeting agreed to a proposal for a gear classification (Annex IV). This was forwarded to FAO/ICES as leads for this topic to develop this further for discussion at the intersessional CWP meeting in 2011.

32. Alpha and Numeric coding of new gear categories would both be developed. It was agreed to maintain old gear codes as long as possible especially for alpha-codes. It is suggested to CWP to emphasize the alpha coding as the one recommended.

33. The numeric coding should be revised thoroughly; FAO and ICES will review the system and make a proposal for the intersessional meeting. Attention should be paid to who is using

34. The classification proposal does not include sorting and other auxiliary devices addressing that issue would require a whole new document. However, where such codes are required e.g. for legal purposes these can be defined at the national or regional level.

**AOB**

35. A mock presentation of the vessel data management (work in progress at FIPS, FAO) was made Fabio Fiorellato. Matching procedures were demonstrated and the main characteristics of the approach taken were explained. Potential additional uses were suggested for the integration of data within the Tuna Organizations, and especial interest was also indicated by GFCM.

**Closing**

36. The meeting was closed at noon on 21 October 2011.

**APPENDIX 5, Annex 1**

## List of participants

***Present at the meeting***

| Name | Organization / Position | Address |
|---|---|---|
| Mr Matthew Camilleri | GFCM Bio-Statistician | Matthew.Camilleri@fao.org |
| Mr Michael Hinton | IATTC | mhinton@iattc.org |
| Ms Mette Bertelsen | ICES | mette@ices.dk |
| Mr Hans Lassen | ICES | hans@ices.dk |
| Mr Bundit Chokesanguan | SEAFDEC | bundit@seafdec.org |
| Mr Francis Chopin | FIRO, FAO | Francis.Chopin@fao.org |
| Mr. Richard S.T. Ferro | FAO, Consultant | theferrofamily@lineone.net |
| Ms. Alicia Mosteiro | MedFisis Project | Alicia.MosteiroCabanelas@fao.org |
| Mr Fernando Jara | FIPS, FAO | Fernando.Jara@fao.org |
| Ms Sachiko Tsuji | FIPS, FAO | Sachiko.Tsuji@fao.org |

***Participants who were linked via Tele-conference***

| Name | Organization / Position | Address |
|---|---|---|
| Mr Carlos Palma or<br>Mr Mauricio Ortiz | ICCAT Secretariat<br>34-91 416 5600 (preferred), or<br>34-91 510 3713 | Mauricio.Ortiz@iccat.int<br>skype: cpalmamadrid or /<br>Mauricioortizp |
| Mr Ricardo Federizon | NAFO Secretariat<br>902- 4683978, in Dartmouth, Nova Scotia, Canada | rfederizon@nafo.int |

**APPENDIX 5, Annex 2**

**Terms of reference:**
**Ad hoc group for developing the draft revision of CWP gear classification**

The twenty-third CWP Session, recognizing the Intersessional Work Plan to Update the CWP Handbook, established the Working Group to Revise the CWP Standard Gear Classifications (ISSCFG), the basis of which were provided by FAO Technical Paper 222/Rev.1 (1990).

**1. OBJECTIVE**

The Group should develop a draft proposal for revision of ISSCFG for both alphabetic and numeric codes.

**2. CONSIDERATIONS**

i. Any revision should provide a clear, unambiguous mapping between current and proposed classifications

ii. It is suggested that a critical review of the substantial efforts of the CWP to revise the standards in 2001 and 2005 will be of importance to the working group.

iii. There is a significant demand for standardized gear classifications.

a. Current utilization of the ISSCFG includes vessel registries, fishing vessel licensing, vessel reporting requirements, and for catch and quota management.

b. The recent agreement on a legally-binding instrument on port state measures to prevent, deter and eliminate Illegal, Unreported and Unregulated fishing legally binds reporting standards to standard ISSCFG alphabetic codes.

iv. It is not pragmatic to assume that the CWP standard gear classifications will be a standard containing classifications for all possible details for the plethora of gear configurations. Yet, there are continuing demands at national levels for a standard gear classification capable of identifying details of gear configurations. Introducing a standard with a world common component and a user defined component (e.g. WCO HS codes) should be considered.

v. There was general preference at the twenty-third Session of CWP that classifications should not mix attributes based on harvesting mechanics with those based on other factors, such as targeting by fishermen, or definitions of fisheries created by management or reporting authorities.

vi. The twenty-third Session of CWP was advised of an ICES/FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) that has been working to update the technical content of FAO Technical Paper 222/Rev.1 (1990). It is expected that the CWP working group would benefit by critical review of the work of the WGFTFB, particularly those related to identification of harvesting mechanisms. Close communication and collaboration with the WGFTFB, especially with the core members from ICES, FAO, and SEAFDEC, may be particularly helpful for the CWP working group, keeping in mind that the WGFTFB considered the update of technical contents based on their knowledge as gear specialists, which may not be necessarily relevant for classification needs for statistical purposes.

**3. COMPOSITION**

i. Participation in the Working Group to Revise the CWP Standard Gear Classifications shall be open to all CWP participating organizations. Each participating organization shall notify the CWP Secretary of its intention to participate in a group, including its nomination of expert(s). Notification should be delivered to the CWP Secretary by 31 March 2010.

ii. It is expected and requested that FAO, ICES and SEAFDEC nominate at least one expert to participate, since they are participating in the WGFTFB.

iii. The Working Group in consultation should select a Group coordinator by 15 April 2010, and inform the CWP Secretary. The CWP Secretary will deliver the name of the Coordinator and composition of the Group to participating organizations as the earliest possible after 15 April 2010.

**4. OTHER MATTERS**

i. Communications and reports on progress of the work should be shared among participating organizations as much as possible, including information and reports available from the WGFTFB as and when available. In this context, FAO should establish a specialized wiki site to facilitate communication and reporting as promptly as possible.

ii. The final draft of proposed standards should be delivered to the CWP Secretary upon completion, but no later than two weeks prior to the twenty-fourth session of CWP. A draft should be presented at the Intersessional Fishery Group meeting.

iii. Operational procedures on voting, expenses, and working languages, should follow the principles of the CWP Rules of Procedure. When a question arises concerning a procedure or course of action, a request for guidance or clarification should be delivered to the CWP Secretary, which if necessary will seek guidance from the participating organizations.

**APPENDIX 5, Annex 3**

## Agenda

1. Welcome
2. Election of chair and rapporteur
3. Tour-de-table for presentation of the participants
4. Presentation of the WGFBFT proposal for revised gear codes
5. Discussion of the WGFTFB proposal
6. Review of gear codes in use by regional fisheries organisations
7. Discussion of draft proposal
8. AOB
9. Closing

**APPENDIX 5, Annex 4**

**Draft proposal for a revised International Standard Classification of Fishing Gears (ISSCFG)**
(Rev 4, 21 October 2010) (Numerical codes to be reviewed)

| Gear categories | Standard abbreviations | ISSCFG code | |
|---|---|---|---|
| | | New | Current |
| **SURROUNDING NETS** | | 01 | 01.0.0 |
| Purse seines | PS | 01.1 | 01.1.0 |
| Surrounding nets without purse lines | LA | 01.2 | 01.2.0 |
| Surrounding nets (nei) | SUX | 01.9 | |
| **SEINE NETS** | | 02 | 02.0.0 |
| Beach seines | SB | 02.1 | 02.1.0 |
| Boat seines | SV | 02.2 | 02.2.0 |
| Seine nets nei | SX | 02.9 | 02.9.0 |
| **TRAWLS** | | 03 | 03.0.0 |
| Beam trawls | TBB | 03.11 | 03.1.1 |
| Single boat bottom otter trawls | OTB | 03.12 | 03.1.2 |
| Twin bottom otter trawls | OTT | 03.13 | 03.3.0 |
| Multiple bottom otter trawls | OTP | 03.14 | |
| Bottom pair trawls | PTB | 03.15 | 03.1.3 |
| Bottom trawls (nei) | TB | 03.19 | 03.1.9 |
| Single boat midwater otter trawls | OTM | 03.21 | 03.2.1 |
| Midwater pair trawls | PTM | 03.22 | 03.2.2 |
| Midwater trawls (nei) | TM | 03.29 | 03.2.9 |
| Semipelagic trawls | TSP | 03.3 | |
| Trawls (nei) | TX | 03.9 | 03.9.0 |
| **DREDGES** | | 04 | 04.0.0 |
| Towed dredges | DRB | 04.1 | 04.1.0 |
| Hand dredges | DRH | 04.2 | 04.2.0 |
| Mechanized dredges | DRM | 04.3 | |
| Dredges (nei) | DRX | 04.9 | |
| **LIFT NETS** | | 05 | 05.0.0 |
| Portable lift nets | LNP | 05.1 | 05.1.0 |
| Boat-operated lift nets | LNB | 05.2 | 05.2.0 |
| Shore-operated stationary lift nets | LNS | 05.3 | 05.3.0 |
| Lift nets (nei) | LN | 05.9 | 05.9.0 |
| **FALLING GEAR** | | 06 | 06.0.0 |
| Cast nets | FCN | 06.1 | 06.1.0 |
| Cover pots/Lantern nets | FCO | 06.2 | 06.2.0 |
| Falling gear (nei) | FG | 06.9 | 06.9.0 |

**APPENDIX 5, Annex 4**

| Gear categories | Standard abbreviations | ISSCFG code | |
|---|---|---|---|
| | | New | Current |
| **GILLNETS AND ENTANGLING NETS** | | 07 | 07.0.0 |
| Set (find better term) gillnets (anchored) | GNS | 07.1 | 07.1.0 |
| Drift gillnets | GND | 07.2 | 07.2.0 |
| Encircling gillnets | GNC | 07.3 | 07.3.0 |
| Fixed (find better term) gillnets (on stakes) | GNF | 07.4 | 07.4.0 |
| Trammel nets | GTR | 07.5 | 07.5.0 |
| Combined gillnets-trammel nets | GTN | 07.6 | 07.6.0 |
| Gillnets and entangling nets (nei) | GEN | 07.9 | 07.9.0 |
| **TRAPS** | | 08 | 08.0.0 |
| Stationary uncovered pound nets | FPN | 08.1 | 08.1.0 |
| Pots | FPO | 08.2 | 08.2.0 |
| Fyke nets | FYK | 08.3 | 08.3.0 |
| Stow nets | FSN | 08.4 | 08.4.0 |
| Barriers, fences, weirs, etc. | FWR | 08.5 | 08.5.0 |
| Aerial traps | FAR | 08.6 | 08.6.0 |
| Traps (nei) | FIX | 08.9 | 08.9.0 |
| **HOOKS AND LINES** | | 09 | 09.0.0 |
| Handlines and hand-operated pole-and-lines | LHP | 09.1 | 09.1.0 |
| Mechanized lines and pole-and-lines | LHM | 09.2 | 09.2.0 |
| Set longlines | LLS | 09.31 | |
| Drifting longlines | LLD | 09.32 | |
| Longlines (nei) | LL | 09.39 | |
| Vertical lines | LVT | 09.4 | 09.4.0 |
| Trolling lines | LTL | 09.5 | 09.5.0 |
| Hooks and lines (nei) | LX | 09.9 | 09.9.0 |
| **MISCELLANEOUS Gears** | | 10 | 10.0.0 |
| Harpoons | HAR | 10.1 | 10.1.0 |
| Hand implements (Wrenching gear, Clamps, Tongs, Rakes, Spears) | MHI | 10.2 | 10.2.0 |
| Pumps | MPM | 10.3 | 10.3.0 |
| Electric fishing | MEL | 10.4 | 10.4.0 |
| Pushnets | MPN | 10.5 | 10.5.0 |
| Scoopnets | MSP | 10.6 | 10.6.0 |
| Drive-in nets | MDR | 10.7 | 10.7.0 |
| Diving | MDV | 10.8 | 10.8.0 |
| Gear nei | MIS | 10.9 | 10.9.0 |
| **GEAR NOT KNOWN** | | 99 | |
| Gear not known | NK | 99.9 | 99.9.0 |

**APPENDIX 6**

# ACHIEVEMENTS OF AGREEMENTS AND RECOMMENDATIONS FROM CWP-23

REVIEW OF MEMBERSHIP

7. It was suggested that the Benguela Current Commission (BCC) should be approached with regard to becoming a member.

*The Benguela Current Commission participated to the CWP 24th session as well as its Fishery Group meeting and expressed its interests to participate the activities.*

8. The meeting agreed that the Secretariat should identify and contact organizations relevant with inland fishery statistics.

*The secretariat contacted with Mekong River Commission (MRC) and Lake Victoria Fisheries Organization (LVFO) taking the opportunity of the 4th meeting of Regional Fishery Body Secretariats' Network held on 13 July 2012 in Rome, Italy and explained the roles of CWP, but so far no strong positive feedbacks were received of their interests in joining the CWP.*

ESTABLISHMENT OF CAPTURE FISHERY GROUP AND AQUACULTURE GROUP

14. Recognizing that the decision on Rules of Procedures would not influence the CWP capacity to arrange subject groups, the meeting agreed to establish a capture fishery group and an aquaculture group.

*Fishery Group and Aquaculture Group were established within the CWP. Aquaculture Group had its first meeting on 2 October 2010 in Phuket, Thailand, and second meeting on 14 July 2012 in Rome, Italy, and Fishery Group had the meeting during 14–16 December 2011 in Rome, Italy, during the intersessional period.*

15. The meeting discussed two options and agreed to amend the existing Rules of Procedure, especially noting the benefits to be able to amend other components in need of revision. The meeting prepared a revised set of Rules of Procedure (Appendix 4) to be delivered by the Secretariat to participating organizations for their endorsement.

*It took unexpectedly long time to obtain the clearance from the legal office of FAO. As the result of consultation with the FAO legal office, the Secretariat will table the revised proposal of amendment of the Rules of Procedures and follow-up actions under the Agenda 9.1 of the main session for further consideration by the Members.*

16. Regarding the operational aspects of the two groups, the meeting agreed that in the Intersessional period the two groups would operate independently, but convene during the main CWP Session which would oversee and coordinate the activities of the two groups, and promote the cause of the CWP as a whole. The meeting considered it important to ensure an adequate level of collaboration between two subject groups as well as between the session and subject groups. This includes holding back-to-back meetings as well as sharing of the CWP session Chair alternatively between each group. The meeting

developed the operational guidelines attached in Appendix 5 that would guide the operation under the new structure. This rule should be reviewed and amended if necessary at the next session.

*Operations of two Groups as well as combined meeting at the CWP session followed the operational guidelines without substantial problems. Based on this first round experiences, the Secretariat will seek the advice from the Members on the timing to elect the CWP Chair that would be explained under the Agenda 9.1.*

GEAR CLASSIFICATIONS

19. The meeting agreed to follow this issue intersessionally with the ad-hoc working group in a close communication with the WGFTFB.

*The meeting of the ad hoc group for developing the draft revision of CWP gear classification was held 19–21 October, 2010 in Rome, Italy, with participation of five CWP Member Organizations (FAO, GFCM, IATTC, ICES, SEAFDEC) and experts from ICES/FAO Working group on Fish Technology and Fish Behaviour (WGFTFB). The meeting was chaired by Mr Hans Lassen (ICES) and had agreed to a revised proposal of ISSCFG. The revised proposal of ISSCFG was cleared at the Intersessional Fishery Group meeting and will be submitted to the CWP-24 for approval.*

GLOBAL STANDARDS ON AUTOMATED DATA TRANSMISSION

25. The meeting considered it useful to keep reviewing the new progress in utilization of such data and agreed to retain this Agenda item at the next session. It was noted that the term 'VMS' is defined strictly in relation to compliance in certain organizations. In order to avoid unnecessary confusion, it was suggested to utilize the more general term of "vessel transmitted information" in the future.

*The agenda item of "Vessel Transmitted Information" was in the agenda of Fishery Group meeting of the CWP-24.*

INTERNATIONAL CODES FOR FISHING EFFORT

26. This item was included at the request of Mr Hans Lassen of ICES who could not attend the meeting. It was agreed to keep the item for the next session with the further confirmation by ICES.

*Following the confirmation by Mr Lassen that the item was not relevant in global context, the item was removed from the agenda of Fishery Group meeting of the CWP-24.*

REVISION OF THE CWP HANDBOOK

39. The meeting agreed to collaborate with the designated coordinators of those components aiming to finalize the updated draft at the next session. It was also agreed that the progress would be reviewed at the intersessional fishery group meeting (See Appendix 7 for the grouping of sections and corresponding coordinating organizations).

*Mr Lassen was hired as a consultant to lead and coordinate the revision of the CWP Handbook. He coordinated with groups working on individual components and integrated all inputs in harmonized way to finalize the proposal of the revision in the Handbook, which review by the Fishery Group meeting.*

**APPENDIX 6**

*Aquaculture Group also finalized the aquaculture component. Wiki page was set up in order to share the information (http://km.fao.org/FIGISwiki/index.php/CWP).*

52. The meeting reviewed its activities planned for the forthcoming intersessional period and agreed to devote the intersessional meeting of Fishery Group to progress review of the CWP Handbook update.

*The intersessional meeting of Fishery Group focused on review the progress of CWP Handbook update.*

TOWARD A GLOBALLY CONSOLIDATED VESSEL LIST

44. The meeting agreed that consideration of criteria for identifying IUU fishing vessels fell outside the mandate of the CWP.

*No action required.*

**APPENDIX 7**

# PROGRESS MADE BY MEMBERS

**Eurostat:**

In 2012, the Fisheries Statistics team at Eurostat almost entirely changed. Franco Zampogna, Matthew Eliott and Steffie Bos have left. Vincent Tronet is the new team leader for Agriculture and Fishery Production Statistics. Friderike Oehler has joined Annabelle Jansen working on Fishery Statistics. A new Detached National Expert (DNE) is expected to join in May 2013. The new team is continuing the work on European Fishery Statistics, maintaining close contact with its predecessors, and in coherence with the annual work programme and the new Commission Decision on Eurostat[1]. The team is working on improving the quality of statistical data and on reducing the reporting burden on data providers, in close collaboration with the European Member States, International Organisations and other European Commission services. Eurostat has also developed a new Confidentiality Charter which should facilitate the systematic treatment of confidentiality in Fisheries Statistics and other domains.

The production and dissemination of European catch, landings, fleet and aquaculture statistics continues to be at the core of Eurostat's work on Fisheries Statistics. The production process and the relevance and user-friendliness of the public Fisheries database (http://epp.eurostat.ec.europa.eu/portal/page/portal/fisheries/data/database) and main tables (http://epp.eurostat.ec.europa.eu/portal/page/portal/fisheries/data/main_tables) are being steadily improved and publications[2] and press releases[3] are being prepared. Likewise, efforts to improve the quality of aquaculture data have been made. At the same time, collaboration with DG MARE (EC) has been reinforced and a new sharing of responsibilities between the two Commission services is envisaged, with DG MARE acting as the single entry point for fisheries data and Eurostat processing the statistical data, sharing them with partner organisations and disseminating the data to the public. For this purpose a new Memorandum of Understanding is expected to be signed by DG MARE and Eurostat in 2013.

Other plans for the future include:

- A revision of the aquaculture regulation (EC 762/2008) following the finalised CWP Handbook aquaculture chapter;

- Further alignment of Eurostat's data collection with FAO and DG MARE with the aim of improving data quality and avoiding double work (collecting, validating and processing data);

- A revision of the catch regulations (EC 216, 217 and 218/2009).

**Food and Agriculture Organization of the United Nations (FAO):**

FIPS has maintained the following global statistics based on international classifications and standardized data submission procedures:

- Capture fishery production volume
- Aquaculture production (volume and value)
- Production and trade of fishery commodities
- Fishing fleet (data only available up to 1998)
- Number of fishers, and
- Supply/Utilization Accounts

[1] COMMISSION DECISION of 17 September 2012 on Eurostat (2012/504/EU)
[2] Most recent publication (Dec 2012): pocketbook Agriculture, fishery and forestry statistics – Main results 2010-2011
[3] Most recent press release (Dec 2012): Farming, fishing and forestry in figures

In addition, FIPS compiles and disseminates capture production statistics by subareas/divisions on behalf of three regional organizations: CECAF (Eastern Central Atlantic), RECOFI (part of Western Indian Ocean); and for the Southeast Atlantic fishing area. It also maintains and updates High Seas Vessels Authorization Record (HSVAR) following the requirement by the Compliance Agreement.

Data are usually obtained from national reporting offices and, wherever possible, verified from other sources. Estimates are produced when data are lacking or are considered unreliable. The statistics are stored in databases and disseminated through publications, electronic media, and the FAO Internet site. Those outputs are widely used internally and externally for global analyses and policy and trend studies. External statistical and information inquiries (an average in-flow of 4-5 per day) are handled through a specific e-mail account – mail to: Fish-Statistics-Inquiries@fao.org - on a daily basis.

ASFIS list of species

The ASFIS List was established in 2000 "for fishery statistics purposes" as it was meant to include species items selected according to their interest or relation to fisheries and aquaculture. However, in the last couple of years its scope broaden as a larger number of institutions adopted the List as their reference classification system for aquatic species and FAO received increasing requests to cover also species not directly related to fishery activities, e.g. those living in Vulnerable Marine Ecosystems (VMEs).

The 2012 release included 12,000 records (downloadable at www.fao.org/fishery/collection/asfis/en), with 441 and 666 new records added since the 2011 and 2010 releases respectively. Various national institutions (e.g. France's Institut français de recherche pour l'exploitation de la mer, Iranian Fisheries Research Organization, Norway's Directorate of Fisheries, Spain's Dirección General de Ordenación Pesquera, a NOAA (USA) project in West Africa, etc.) had requested bulk additions of new records and VME species were derived from publications by Australia, New Zealand and RFBs such as CCAMLR and NAFO.

In addition, the 2012 release included also Arabic (2118), Chinese (2117) and Russian (577) names and records in the ASFIS List can be now also searched and retrieved online through the FAO Aquatic Species portal (http://termportal.fao.org/faoas/main/start.do) developed by the FAO Terminology Team in the Language Support Group, Meeting Programming and Documentation Service, CSCMM.

HS-Classification of commodities

The Harmonized Commodity Description and Coding System, commonly referred to as the Harmonized System (HS), is used as a basis for the collection of customs duties and international trade statistics by more than 200 countries and economies. Over 98 percent of the merchandise in international trade is classified in terms of the HS. At present, about 130 six-digit codes cover fish and fishery commodities (mainly grouped in HS chapters 03 and 16). This classification has been developed, introduced and maintained by the World Customs Organization (WCO). Since its introduction and general adaptation in 1988, the HS classification has undergone regular review and in January 2012 an updated version of the HS was released where substantial amounts of modification relating with fish and fishery commodities based on the FAO proposal. The list HS2012 for fish and fishery commodities is available as CWP-24/inf.2 and the difference between HS2007 and 2012 for agriculture and fishery commodities in CWP-24/inf.3.

The FAO modifications for HS codes of fish and fishery products have attempted to improve the quality and precision of fish trade coverage, through an improved specification for species and products form. Within the limits of the available codes, the classification was restructured according to main groups of species of similar biological characteristics. About 190 amendments were implemented and 90 new commodities (species by different product form) introduced. The choice of the additional species was based on their present and future economic importance as well as on the monitoring of potentially endangered species. Among the species introduced are tilapia, catfish, carps, hake, seabass, seabream, Alaska pollack, cobia, jack and horse mackerel, rays and skates, Norway lobster, coldwater shrimps,

clams, cockles, arkshells, abalone, sea urchin, sea cucumber and jellyfish. Several splits by more product forms for several species were also introduced, in particular for meat and fillets, as well as the introduction of shark fins in their cured form, the separation of sturgeon caviar from other substitutes, the split of molluscs from other aquatic invertebrates and the distinction of seaweeds for human consumption and other purposes. The new classification of seaweeds will be useful for the calculation of the FAO Food Balance Sheets which now could provide the feasibility to take aquatic plants into consideration in the calculation of apparent consumption data.

The revision of the HS is a complex and lengthy process. As the need to improve the HS classification for monitoring the entire trade of fish and fishery products, FAO submitted a joint proposal for the revision of the codes related to agriculture, forestry and fishery products for HS2017 in March 2012. The proposal on fish and fishery commodities was developed with a specific focus on improvement in shark products, in a close collaboration with NOAA, USA, and to improve HS capacity to monitor ornamental aquarium products. The proposal was tabled at the WCO HS Review Sub-Committee held in May. The WCO HS Review Sub-Committee in November reviewed the revised version that was modified taking into account the feedbacks at May meeting and other suggestions received. The proposed amendments were generally accepted from technical points for submission to the WCO Council. We received strong support from CITES. The proposed amendments by FAO is in CWP-24/inf.4, together with explanatory note on fish and fishery commodities.

The revision of the HS is done on a regular basis, with a timeframe of five years between one revision and the other. FAO decided to continue the cooperation with WCO for the revision of HS2017 to make HS more accountable for products related to agriculture, forestry and fishery. Due to the relevance of the HS in the collection of trade statistics and the major improvement obtained through the previous revision cycle of the HS, the main aim of the FAO proposal for fish and fishery products is to further enhance the coverage of species and/or product forms which need to be monitored for food security purposes and/or for better management of resources, in particular for endangered species.

In March 2012, FAO submitted a revised proposal for the revision of the Harmonized System (HS) to WCO, proposal further revised in October 2012. This proposal was the result of in-house consultations between the Statistic Division (ESS), Fisheries and Aquaculture Statistics and Information Service (FIPS), Forest Economics, Policy and Products Division (FOE), Rural Infrastructure and Agro-Industries Division (AGS), Plant Production and Protection Division (AGP) and Trade and Markets Division (EST). A supporting document was also submitted to illustrate the criteria for the suggested amendments, including data and, where necessary, clear definitions. This document was intended to help WCO member countries to examine the FAO proposal and facilitate the discussions.

At present, the FAO proposal is being discussed at the Harmonized System Review Sub-Committee of WCO. A revised version of the proposal will be submitted by the end of March 2013 to take into account the outcome of the meetings of the Harmonized System Review Sub-Committee.

Aquaculture:

FAO in collaboration with SPC (Secretariat of the Pacific Community) organized an FAO/SPC Regional Workshop on Aquatic Biosecurity and Aquaculture Data & Statistics in the Pacific Region, 1-6 October 2012, Nadi, Fiji with the participation of 20 Pacific islands countries and territories (PICTs). The workshop discussed on aquaculture data needs and capacity building in the Region, together with issues on biosecurity and biodiversity and agreed on a process for the implementation of Strategy-STA (Status and Trends of Aquaculture) in PICTs for improving aquaculture data collection, compilation, analysis and reporting, including methodologies, standards and institutional arrangements.

An FAO Scoping Workshop on Regional Cooperation Programme for Responsible Aquaculture and Fisheries Development in the Central Asian and the Caucasian Countries was held in Urumqi, Xinjiang, China from 4–8 June 2012. The workshop drafted a Strategy Framework on Aquaculture and Fisheries

**APPENDIX 7**

Development Cooperation among countries in Central Asia and Caucasus Regions and China, Iran, Mongolia, Pakistan and Turkey. Forty-five participants representing 12 countries (five Central Asian countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, two Caucasian countries: Azerbaijan and Georgia, three countries from other Asia: Pakistan, Mongolia and Iran [Islamic Republic of] and Turkey and China) and five regional institutions/Technical Support and Advisory Agencies (CACFish, NACA, NACEE, FFRC Wuxi and FRI Xinjiang), two donor agencies (Ministry of Agriculture, China and FAO South South Cooperation) and FAO staff took part in the workshop. The countries agreed on a vision, the strategic goals and specific objectives of the strategy and recommended seven major priority programmes including data collection and information dissemination. A number of activities related with data collection and dissemination were included in the activities proposed to implement regional strategy.

With assistance support from FAO FI, two aquaculture regional networks have been established in recent years, the Working Group on Aquaculture (WGA) of the Regional Fisheries Commission (RECOFI) in the Gulf region and the Aquaculture Network for Africa (ANAF) in sub-Sahara Africa under aegis of the Committee of Inland Fisheries and Aquaculture (CIFAA). The RECOFI-WGA composed by the National Focal Points of eight member countries (Bahrain, Islamic Republic of Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates) is the forum to discuss status and trends of aquaculture development as well as regional emerging issues. Through the technical assistance of FAO-FIRA a web based regional aquaculture information system (RAIS) has been developed to facilitate the exchange of aquaculture information in the Gulf area and to develop functional network of regional experts to promote and develop the sector in the region. One of the priorities of the WGA is to promote the collection, management, analysis and use of valid and accountable statistics to monitor aquaculture status and trend in the Region to be posted in the RAIS web site (www.raisaquaculture.net). In the agenda of the Sixth meeting of the WGA (postponed to 2013) it was included the following item: Aquaculture production reporting in the RECOFI Region including consideration of a draft recommendation for transmission to the Seventh session of RECOFI.

The Aquaculture Network for Africa (ANAF) is composed by twelve member countries (Cameroon, Ghana, Kenya, Mali, Mozambique, Namibia, Nigeria, Republic of South Africa, Senegal, Tanzania, Uganda and Zambia) which meet on a regular basis (once a year) to discuss and share information of regional aquaculture developments. A regional aquaculture information system was recently established, the ANAF web site (www.anafaquaculture.org). ANAF is a platform to disseminate the main outputs generated by the ANAF-WGA (e.g. technical workshops, training, production statistics, list of regional experts, etc.). The fourth Aquaculture Network for Africa (ANAF) annual meeting was held in Entebbe, Uganda, 4–6 December 2013. The meeting was attended by representatives of nine ANAF member countries, two international consultants and representatives from NEPAD and ACP FISH II programmes. During the above meeting, delegates requested FAO to organize one day training session on aquaculture statistics collection to be carried out during next ANAF annual meeting (Dakar, Sénégal, July 2013).

Central Asian and Caucasus Regional Fisheries and Aquaculture Commission (CACFish), a Regional Fisheries Management Organized was established in 2010 as an FAO body. The Technical Advisory Committee (TAC) is currently the only subsidiary body of the CACFish. The first session of the TAC was convened in Kiev, Ukraine from 20 to 22 November 2012 and participated by 4 Member States – Armenia, Kyrgyzstan, Tajikistan, and Turkey. Representatives from 6 non-CACFish Member States (Azerbaijan, Georgia, Kazakhstan, Turkmenistan, Ukraine and Uzbekistan) also participated in this first session. Scientific advice on four issues was produced by the first session and these will be submitted to the 2nd session of the CACFish, to be held in 2013, for discussion, and, as appropriate, enforcement consideration. One of the issues being "Improvement of collection, analysis, and dissemination of fisheries data and information". In relation to fisheries data and information, it was highlighted that the national data collection methods and the data collected by states from CAC region, to a great extent, falls

short of addressing national and regional needs as well as meeting the requirements emerging from international commitments.

In the fourth Regional Consultative Forum Meeting (RCFM) of the APFIC, Da Nang, Viet Nam, 17–19 September 2012, detailed and aggregated data collection of fisheries and aquaculture was encouraged for the Member Countries.

State of the World Aquatic Genetic Resources (AqGR), an initiative of FAO is working together with number of countries to assess the state of the global aquatic genetic resources through organizing workshop, preparing questionnaire and providing guidelines for data collection. The final publication of the State of the World AqGR will be published in 2017. Global Strategy of Improving Agricultural and Rural Statistics (www.ibge.gov.br/home/estatistica/indicadores/prpa/segundo_texto.pdf) that was adopted at United Nations Statistical Commissions (UNSC) in 2010 promotes integration of agriculture (including fishery and aquaculture) statistics into national statistics collection. As the first step to implement this Strategy in the context of fishery and aquaculture, FAO is promoting i) disaggregation of 'fishery and aquaculture' from 'agriculture' in the population census question on engagement, ii) active utilization of aquaculture satellite module in agriculture census, and iii) enhanced use and links of administrative information (e.g. licenses), GPS and satellite imagery.

Fleet Statistics

Due to the delay in recruiting the fleet statistician, the compilation, evaluation and dissemination process for fleet statistics has been suspended since the last dissemination of data up to 1998. Data for 1999-2003 was compiled without evaluation nor with an attempt to fill gaps and missing data, which were not comparable with historical data. FIPS decided not to publish them. Fleet questionnaires have been sent to member countries as previously but response rate is very low and some of the reported data are considered as only partial coverage and others are totally lacking information on size classes and vessel types. Discrepancies in definition of size categories and vessel categories between the national system and that in FAO can be one of major causes of poor reporting.

Corresponding to the increasing demands on fleet related information, especially estimates of global and national fishing capacity and their historical trends, FIPS initiated an investigation on a suite of existing fleet-related information and availability and/or restriction of data use with a view to re-establish fleet statistics and data collection system. Given today's high capacity to compile and process a large quantity of data, FAO considers a possibility to shift toward data collection at least aggregated level including those of individual vessel data, which allows more flexible analysis and accurate data collation and dissemination. In fact, the European Community and Eurostat already applied this procedure and proved its effectiveness. The preliminary exercises to develop the design of database and supporting functionality suitable for this type of data collection was already initiated and the future plan includes for FAO to provide the preformatted macros to automatically extract the classification from raw registry data convenient for national management and dissemination.

Such activities are closely related with those considered for the development of a global vessel records. FIPS wishes a strong coordination between developing efforts for a global vessel list and those for fleet statistics to establish simplified streamlined data flow in a harmonized way.

**General Fisheries Commission for the Mediterranean (GFCM):**

GFCM IN BRIEF

The General Fisheries Commission for the Mediterranean (GFCM) is the Regional Fisheries Management Organization (RFMO) which aims at guaranteeing the sustainability of fisheries and aquaculture in the Mediterranean and the Black Sea area of competence (FAO Major Fishing Area 37) and contributing to the preservation of the marine environment and ecosystems in this region. Founded in Rome 61 years

ago[4], GFCM is a concrete response to the need to keep the exploitation of fish stocks sustainable, to enhance aquaculture and to make fisheries and aquaculture activities compatible with the proper functioning of Mediterranean and Black Sea sensitive ecosystems. In cooperation with other RFMOs, the GFCM is instrumental in coordinating governments' efforts to effectively manage fisheries at the regional level following the Code of Conduct for Responsible Fisheries (CCRF). The GFCM has the authority to adopt binding recommendations for fisheries conservation and management in its area of convention and plays a critical role in fisheries governance in the region. The GFCM holds its regular sessions annually. It implements its policies and activities through the Secretariat and operates during the intersessional period by means of its committees, namely the Scientific Advisory Committee (SAC), the Committee on Aquaculture (CAQ), the Compliance Committee (CoC), the Committee of Administration and Finance (CAF) and their respective subsidiaries. The GFCM also benefits from the support of cooperation projects at sub-regional and regional levels which enhance, in particular, scientific cooperation and capacity-building in participating countries, in line with the GFCM priorities and strategies. Additionally, the Commission closely cooperates with other international organizations in matters of mutual interest. The GFCM currently has 24 Members: 22 Mediterranean and Black Sea States, Japan and the European Union. The GFCM official languages are Arabic, English, French and Spanish.

GFCM DATA COLLECTION - CAPTURE FISHERIES

The current GFCM data collection framework is composed of the following eight main components (in alphabetical order): dolphinfish fisheries; illegal, unreported and unregulated fishing (IUU) vessel list; ports state measures; red coral; STATLANT 37A; TASK 1 operational units (economic data, fishing activities, resources targeted, catch and effort, biological data), vessel records (fleet and fishing capacity) and vessel monitoring system (VMS). With the exception of STATLANT 37A, which is an FAO commitment, all of these components derive from GFCM binding recommendations, implying obligations for GFCM member countries to submit data according to information requirements, formats and protocols laid down in such decisions. In addition to them and within its mandate, GFCM regularly assesses the status of stocks and collects data and methods used by the scientists. Results including stock status and advice are produced in a set of files called "Stock Assessment Forms" (SAFs). The information gathered in the SAFs is reviewed annually by the GFCM-SAC through its Sub-Committee on Stock Assessment (SCSA). A new type of SAFs, completed and gathered through a collaborative cloud-based environment supported by SharePoint, has been recently developed by the Secretariat. Such shared environment allows tracking and classifying information according to specific metadata which are automatically extracted from the document. As a complementary activity, a new set of summary sheets on stock status are currently being developed following a similar methodology, to be submitted for consideration to the GFCM-SAC. Upon clearance, these information sets might be identified as a potential information source to generate data exports to Fishery Resources Monitoring System (FIRMS). In designing its information systems to collect, validate, analyze and disseminate data, GFCM pays particular attention to the use of international codifications and standards (e.g.: fishing gear, species, fishing areas, etc.) and to all the aspects related to data security and confidentiality (resolution GFCM/35/2011/2 on data confidentiality policy and procedures).

GFCM DATA COLLECTION – AQUACULTURE

GFCM collects data and information on aquaculture production statistics and other data relevant to the function of the Committee on Aquaculture (CAQ) through the Information System for the Promotion of Aquaculture in the Mediterranean (SIPAM), one of its subsidiary bodies. GFCM Members have an obligation to provide such information to the GFCM Secretariat and, for this reason, the SIPAM web portal has recently become the official aquaculture information system of the GFCM. Features such as

[4] The Agreement for the establishment of the General Fisheries Commission for the Mediterranean (GFCM), under the provisions of Article XIV of the FAO Constitution, was approved by the FAO Conference in 1949 and entered into force in 1952.

web-based data submission, statistical analysis (production statistics data analysis tool) and dissemination of data/information are continuously updated and improved, in line with the activities identified at the SIPAM annual meeting and CAQ biannual sessions. An important milestone towards a consolidated set of aquaculture definitions and key requirements for the SIPAM data-entry system was achieved at the "Workshop on harmonization of standards for Mediterranean aquaculture data collection" (2009). Acknowledging that standards in aquaculture data collection and statistics should be established in line with the guidelines set by the FAO Coordinating Working Party on Aquaculture Statistics, the GFCM adopted two specific recommendations on reporting aquaculture data and information, namely Rec. GFCM/33/2009/4 and its subsequent amendment and Rec. GFCM/35/2011/6, through which the following data are collected: a) PRODUCTION STATISTICS (by CWP statistical areas; culture environment; cultured species; system of culture; type of culture; capture-based aquaculture input production quantity; production value), b) PRODUCTION CENTRES (unit/segment of production; number of production centres per unit/segment; cultured species per unit; total volume ($m^3$) of facilities of production centres per segment; destination of product per segment), c) MARKET (feed, fishmeal and fish oil: domestic production, feed prices for major farmed species, domestic prices; trade and consumption: import and export of aquatic products, import and export of major farmed species, main export destination for farmed species, national per capita consumption of aquatic products).

**International Commission for the Conservation of Atlantic Tunas (ICCAT):**

ICCAT continues collecting, processing and publishing through the ICCAT Statistical Bulletin series (www.iccat.int/en/pubs_sbull.htm) and on the website (www.iccat.int/en/accesingdb.htm) fishery statistics of tuna, tuna-like, and sharks species as well as other data requested by the Commission. In total, those data covers about 30 databases (nearly 600 tables) managed by the IT Research and Statistics Department of ICCAT. The VMS framework, given its proper specificities (real time, confidentiality, etc.) is kept in a separate database). Currently, the Secretariat is working in the improvement of the data reporting system by adopting/develop a "WebForm" framework.

The Data Confidentiality Policy adopted by ICCAT in 2010 allows contracting parties to provide detailed information to be used by the SCRS to improve its scientific advice.

ICCAT maintains its commitment to adopt the CWP recommendations on the adoption of standard coding systems whenever possible.

Since the last CWP meeting ICCAT has been working in the implementation of an electronic bluefin tuna catch documentation scheme (eBCD). The system will be fully operational for testing by the next fishing season.

ICCAT has actively worked in harmonizing the data collected by observers into the tuna RFMOs framework. The harmonization of the observer programmes for both purse seiners and longliners was recommended by the Joint tRFMOs By-catch WG in 2011. In 2012, ICCAT participated in a first meeting to harmonize the purse seiners observer programs on tropical species and to define the minimum standard data to be collected by observers. Currently ICCAT is developing a standard observer data collection form as part of this harmonization process.

In addition ICCAT is developing a Cloud Computing Infrastructure with two components: a) ICCAT-DB documentation framework, and b) Computing. The first component will provide the SCRS with the necessary tools to obtain basic data used in assessments in a quick and intuitive manner. The computing module will allow tackling the current SCRS's needs in computation.

ICCAT has discontinued (last version published on March, 2010) the update of the FISHSTAT+ dataset available on the web (low demand for this dataset). The Secretariat will study the possibility of publishing the data sources for the new version under development: "FishstatJ".

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ICCAT continues to be very active in developing capacity building and assisting developing member States in the improvement of data collection and reporting systems.

**International Council for the Exploration of the Sea (ICES):**

In October 2010 a workshop consisting of CWP members and ICES gear technologists took place in Rome with the aim to update the section on gear classifications in the CWP handbook. The version agreed at that meeting is the version included in draft handbook presented at this CWP meeting.

ICES continues to work closely with Eurostat on fisheries statistics issues and on the shared database. The cooperation is regulated through a partnership agreement. There is correspondence throughout the year on database issues and annually there is a joint ICES-Eurostat session at the Eurostat meeting on statistics in Luxembourg.

There is a proposal from Eurostat to ICES to split the ICES cod 27.3 for catch data purposes. The proposal was tabled for information at the meeting. It is currently being investigated if this has implications for EU legislation and the process thereafter is to have it agreed by ICES Council and agreed at the Eurostat annual statistics meeting in October 2013. The final step is to update CWP and have the maps in the Handbook updated. Since this is a proposed change within Area 27 the change does not need to be approved by the CWP.

CWP was informed on the ICES Symposium that took place in Galway during August 2010 on "Making the Most of Fisheries Information – Underpinning Policy, Management and Science". This symposium was rather successful and will be followed up with a symposium to be held during March 2014, at FAO Headquarters on “Making the Most of Fisheries Dependent Data: Science, Management, and Policy-making with the Active Participation of Stakeholders”. CWP members were encouraged to participate and present their work.

**Northwest Atlantic Fisheries Organization (NAFO):**

In addition to the routine addition of data to the NAFO’s STATLANT 21 database, the following actions have been undertaken to improve the quality of fisheries statistics in the Northwest Atlantic area.

REVIEW OF SCIENTIFIC CATCH ESTIMATES

Discrepancies between catch estimates used for scientific purposes and those reported through official channels are a common problem in many fisheries. This is particularly problematic when a fishery is constrained by a management plan where scientists and managers recognize different levels of catches. In 2012, NAFO took steps to reduce the scale of this problem. One of the recommendations of the NAFO Performance Assessment was to hold an independent review into this catch discrepancy. Three experts were appointed to an ad hoc panel and tasked with this review. The terms of reference for the first phase were to examine the methodology used to produce scientific catch estimates. The group presented a progress report in September 2012 and made a number of recommendations regarding improving the quality of data used within NAFO and suggesting future lines of work.

COMPARISON OF CONVERSION FACTORS

Independently of this review, the Standing Committee on International Control (STACTIC) commenced an initiative to conduct scientific based, independent, and structured sampling of catches and product types. The intent is to establish a recommendation for standard conversion factors for the primary species harvested. The methodology and framework for the project are currently under development. It is expected that they will be presented at the STACTIC Intersessional Meeting in May 2013.

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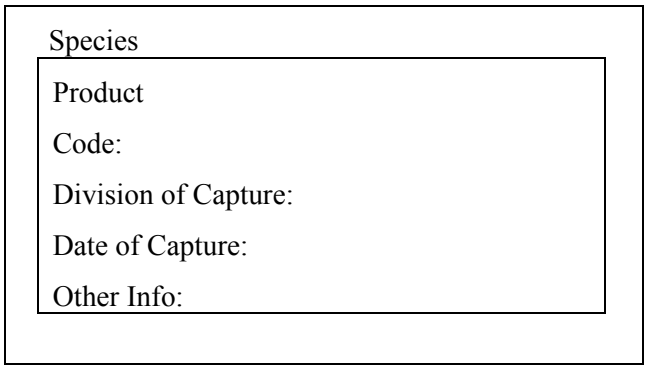
VESSEL TRANSMITTED INFORMATION

NAFO has made progress in the way in which it uses real-time information received from vessels. It has clarified the distinction between "Vessel Monitoring System" (VMS) and "Vessel Transmitted Information" (VTI). VTI encapsulates all transmitted information beyond the VMS requirements (position, speed, and heading), such as the daily catch reports which vessels fishing in the NAFO regulatory area are required to submit to the Secretariat. These catch reports are used in quota monitoring for the fisheries which NAFO regulates. Steps have also been taken to make this data more accessible in summary form to the various bodies of NAFO to allow them to better perform their mandated tasks. The requirement is now for positional data (VMS) to be transmitted to the Secretariat on an hourly basis, and for catch and other information to be sent on a daily basis (the CAT report). In 2012, NAFO adopted a requirement for haul by haul data to be recorded in logbooks and while this is not submitted to the Secretariat, nor is it available for scientific or compliance purposes, it is hoped that this improves data quality further in the future.

PRODUCT REPORTING STANDARDS

In 2010, it was noted that there were no minimum standards for product labelling in the NAFO Conservation and Enforcement Measures (NCEM). The lack of a standard was felt to have resulted in labels having information that was not legible, labels falling off the packaging or the original date of capture label being covered with an additional label. The mislabelling of catch had resulted in catch being misallocated, particularly in the case of the Grand Bank and Flemish Cap Shrimp fisheries, where the date of capture was required. To ensure that product can be inspected properly, enabling NAFO inspectors to reconcile catch in the hold with what is recorded by the Master; standards were specified in the NCEM.

Labels are now required to be securely affixed, stamped or written on packaging and be of a size that can be clearly read by inspectors in the normal course of their duties, clearly marked in ink on a contrasting background. Packages are required to contain no more than one product category. In the case of shrimps harvested in Divisions 3L and 3M and Greenland halibut harvested in Subarea 2 and Divisions 3KLMNO each package shall only contain one stock area, and in the case of shrimps only, each package shall only contain one date of capture. Catches and product labelled in accordance with Article 27 of the NAFO Conservation and Enforcement Measures shall be accurately recorded in the daily production logbook and the daily fishing logbook.




In 2011, it was further noted that the existing list of product codes in NAFO's Conservation and Enforcement Measures was not exhaustive enough to cover all the fish products being landed by vessels fishing in the NAFO regulatory area. NAFO has therefore updated the list of product form presentation codes to be more in line with the 3-Alpha codes currently in use elsewhere.

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**Old Codes**

| Code | Product Form |
|---|---|
| **A** | Round – Frozen |
| **B** | Round – Frozen (Cooked) |
| **C** | Gutted Head On – Frozen |
| **D** | Gutted Head Off – Frozen |
| **E** | Gutted Head Off – Frozen (Trimmed) |
| **F** | Skinless Fillets – Frozen (Bone In) |
| **G** | Skinless Fillets – Frozen (Boneless) |
| **H** | Skin On Fillets – Frozen (Bone In) |
| **I** | Skin On Fillets – Frozen (Boneless) |
| **J** | Salted Fish |
| **K** | Pickled Fish |
| **L** | Canned Products |
| **M** | Oil |
| **N** | Meal (Round Fish) |
| **O** | Meal (Offal) |
| **P** | Other (Specify) |

**Updated codes**

| Code | Product Form | Notes |
|---|---|---|
| **CBF** | Cod butterfly (escalado) | HEA with skin on, spine on, tail on |
| **CLA** | Claws | Claws only |
| **DWT** | ICCAT code | Gilled, gutted, part of the head off, fins off |
| **FIL** | Filleted | HEA + GUT + TLD + bones off |
| **FIS** | Filleted and skinned | FIL+SKI |
| **FSB** | Filleted with skin and bones | Filleted with skin and bones on |
| **FSP** | Filleted, skinned with pinbones | Filleted with skin removed and pinbones on |
| **GHT** | Gutted, headed and tailed | GUH + TLD |
| **GUG** | Gutted and gilled | Guts and gills removed |
| **GUH** | Gutted and headed | Guts and head removed |
| **GUL** | Gutted, liver in | GUT without removing liver parts |
| **GUS** | Gutted, headed and skinned | GUH + SKI |
| **GUT** | Gutted | All guts removed |
| **HEA** | Headed | Heads off |
| **HET** | Headed and tailed | Heads and tails off |
| **JAP** | Japanese cut | Transversal cut removing all parts from head to belly |
| **JAT** | Japanese cut and tailed | Japanese cut with tail removed |
| **LAP** | Lappen cut | Double fillet, HEA, skin, tail and fins on |
| **LVR** | Livers | Livers only |
| **OTH** | Other | Any other presentation |
| **ROE** | Roe(s) | Roe only |
| **SAD** | Salted and dried | Headed with skin on, spine on, tail on, and salted dry |
| **SAL** | Salted wet light | CBF + salted |
| **SGH** | Salted, gutted and headed | GUH + salted |
| **SGT** | Salted and gutted | GUT + salted |

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| | | |
|---|---|---|
| **SKI** | Skinned | Skin off |
| **SUR** | Surimi | Surimi |
| **TAL** | Tail | Tails only |
| **TLD** | Tails off | Tails off |
| **TNG** | Tongue | Tongue only |
| **TUB** | Tubes only | Tube only (Squids) |
| **WHL** | Whole | No processing |
| **WNG** | Wings only | Wings only |

FISHING VESSEL CODES

In 2012, three main vessel types and their corresponding codes were inserted in the NAFO list of Main Vessel Types: Support Vessel = VOS; Bunker = VOB; and Other Non-Fishing Vessel = VOX.

**NAFO updated list of Main Vessel Types and their codes (Annex II.I.A. of NCEM)**

**A. Main Vessel Types**

| FAO Code | Type of vessel | FAO Code | Type of Vessel |
|---|---|---|---|
| **BO** | Protection vessel | **NOX** | Lift netter NEI |
| **CO** | Fish training vessel | **PO** | Vessel using pumps |
| **DB** | Dredger non continuous | **SN** | Seine netter |
| **DM** | Dredger continuous | **SO** | Seiner |
| **DO** | Beamer | **SOX** | Seiner NEI |
| **DOX** | Dredger NEI | **SP** | Purse seiner |
| **FO** | Fish carrier | **SPE** | Purse seiner (European) |
| **FX** | Fishing vessel NEI | **SPT** | Tuna purse seiner |
| **GO** | Gill netter | **TO** | Trawler |
| **HOX** | Mother ship NEI | **TOX** | Trawlers NEI |
| **HSF** | Factory mother ship | **TS** | Side trawler |
| **KO** | Hospital ship | **TSF** | Side trawler freezer |
| **LH** | Hand liner | **TSW** | Side trawler wetfish |
| **LL** | Long liner | **TT** | Stern trawler |
| **LO** | Liner | **TTF** | Stern trawler freezer |
| **LP** | Pole and line vessel | **TTP** | Stern trawler factory |
| **LT** | Troller | **TU** | Outrigger trawlers |
| **MO** | Multipurpose vessels | **WO** | Trap setter |
| **MSN** | Seiner hand liner | **WOP** | Pot vessels |
| **MTG** | Trawler drifter | **WOX** | Trap setters NEI |
| **MTS** | Trawler purse seiner | **ZO** | Fish research vessel |
| **ZOT** | Temporary Fish Research Vessel | **NB** | Lift netter tender |
| **DRN** | Driftnetter | **NO** | Lift netter |
| **VOS** | Support vessel | **VOB** | Bunker |
| **VOX** | Other non-fishing vessels | | |

NEI = Not Elsewhere Identified

**APPENDIX 8**

## FIRST INTERSESSIONAL AQUACULTURE GROUP MEETING
## (Phuket, Thailand, 2 October 2010)

Opening of the meeting:

The first meeting of Coordinating Working Party on Fishery Statistics Aquaculture subject Group (CWP-AS) was held on 2 October 2010 in Phuket, Thailand with the participation of four CWP participating organizations (FAO, NACA, SEAFDEC, and SPC) and additional nine experts nominated by FAO. The list of participants is in Attachment 2. The meeting was co-hosted by FAO and SEAFDEC.

Election of Chairs:

The meeting elected SEAFDEC as the Group coordinator and FAO as vice coordinator, with the agreement that the position of coordinators would stay in the elected organizations, not attribute to individual persons. In the case of absence of designated persons in future meetings, alternative persons from the same organization will take the role of coordinators. For this specific meeting, Ms Pouchamarn Wongsanga of SEAFDEC and Mr Jiansan Jia of FAO took the task of Group coordinator and vice coordinator, respectively.

Adoption of agenda:

Draft Agenda was adopted without modification, which is in Attachment 1. There is no other business to discuss.

Establishment of CWP-AS and Review of its Terms of Reference:

The meeting was informed that the 23rd session of CWP (CWP-23) decided to establish two subject groups, one for aquaculture and one for fishery, to enhance effectiveness of the CWP to address issues specific to capture fisheries and to aquaculture. Both Groups are under the governance of the CWP that shall review the operational status of each group at its session. Operational Guideline of the Groups agreed by the CWP-23 is in Appendix 1.

The meeting reviewed the Terms of Reference of the Group that was developed at the CWP ad-hoc Aquaculture Meeting held in Puerto Varas, Chile, in October, with special attention to a consistency with the Operational Guideline of subject groups.

The importance to refer to the utilization of data and information was noted and it was agreed to modify the objective in consistent way of the CWP Statutes. It was also agreed to add a bullet points on providing advices on utilization of data and statistics in aquaculture policy and management development. Amendments were made on the organizations referred to reflect further progress in establishment of aquaculture networks and strengthening incorporation in data and information areas, which includes Commission of Genetic Resources for Food and Agriculture (CGFRA) into paragraph 5 and NACEE to the second bullet point of paragraph 6, respectively, and change of organization name from ANA to RAA in the paragraph 6. It was noted that the CWP terminology indicating Member, i.e. “participating organization“, often causes confusion with those organizations participating to the Group activities and the Group agreed to insert a clarification note.

It was noted that implementation of standards developed under CWP framework would require substantial efforts in capacity building and financial resources to support them. Recognizing that such implementation is in principle a responsibility of organizations participating to the CWP framework, the Group discussed whether coordination for resource raising should be included in focused area of activities of paragraph 2. While organizations can take full advantage of CWP-AS meetings in developing coordination toward fund raising efforts, it is still unclear what the CWP-AS can actually do as a group. Therefore, the Group decided not to include this in paragraph 2 and agreed to continue the discussion.

It was noted the need to strengthen a communication with countries in delivering outcomes as well as in obtaining feedbacks, taking into account that the majority of aquaculture activities occur within national jurisdictions. At the same time, the Group noted the benefits of regional organizations being leaders in global harmonization and coordination of aquaculture data and statistics, while recognizing that the governance of regional coordination mechanisms in aquaculture is not as strong as the case of capture fisheries. There were also concerns to expand number of participants too largely. As a conclusion, the Group decided not to modify the "Composition" of the Group at this moment but would consider mechanisms to enhance national involvement, in addition to invitation of a limited number of national experts to the CWP-AS meetings.

Need to determine the minimum quorum to have meetings was noted. However, due to ambiguity in composition and operational situation in the future meetings, the Group decided to defer the decision on this point.

The final agreed Terms of Reference of Aquaculture Group is in Attachment 3.

CWP Handbook:

The Secretariat reported the progress and current status of preparation of Aquaculture component of the CWP handbook. The Strategy and Outline Plan for Improving Information on Status and Trend of Aquaculture (Strategy-STA) endorsed by the 3rd session of the COFI-AQ (New Delhi, India, 2006) stressed the importance to develop standard concepts, terminology and methodology for aquaculture data collection and the two CWP ad-hoc Aquaculture Group Meetings of 2008 in Puerto Varas and of 2009 in Rom identified the revision of aquaculture component of CWP Handbook as the highest priority.

The CWP held the Expert Workshop in Halong Bay, Vietnam, 10–13 November 2009, to develop a final draft of aquaculture handbook based on a preliminary draft developed by NACA and FAO. The draft tried to cover a broad range of information that are currently required or would become needed in near future for management of aquaculture sector. The Workshop succeeded to finalize the draft except few points. Since unresolved issues were all related difference in views among experts from FAO, FAO was tasked to finalize those issues for final review of the Workshop participants.

FAO reported with apology that due to conflicts with many other commitments, it still has not completed this task and clearly indicated its intention to deliver the final draft before the end of November to the Secretariat.

Accordingly, the following work plan was agreed:

- Finalize the draft and pass to the Secretariat before the end of November (FAO).
- Secretariat will circulate the final draft to all CWP members, those who participated in drafting process, and national focal points for FAO Aquaculture Statistics promptly after the receipt of the final draft of Handbook, and ask for feedback before the 15 January 2011. All feedbacks obtained will be incorporated and the composite file will be made available at the time of COFI for further discussion and decision.
- FAO will report on the CWP Handbook to COFI and CGRFA in appropriate way.

The Secretariat pointed out that some of those components utilized in common between aquaculture and capture productions were not included yet in the Aquaculture component of Handbook in order to secure a consistency between them. All CWP-AS members were asked their active participation in the process of review and update of such components in the overall CWP Handbook.

Implementation of Strategy-STA:

SPC proposed that there be a Pacific regional TCP on capacity-building in aqua statistics, in which it prepares a briefing paper on this meeting for Heads of Fisheries 2011 as a joint FAO/SPC paper involving FAO sub-regional office, it circulates as an appendix a draft TCP concept note, it invites SPC Fisheries

Directors to support, and to nominate one country (e.g. PNG) to make a country request to FAO on behalf of the PICTs for the TCP. The CWP meeting thought this would be a good way to proceed.

FAO indicated to finalize the project proposal of for inter-regional Trust Fund project of implementation of Strategy-STA with the emphasis on capacity building in developing countries. At the same time, FAO expressed its intention to explore opportunities for statistics capacity building or incorporating statistics capacity building component into national, regional, and inter-regional TCPs and other project development.

The meeting welcomed the initiative of FAO and encouraged for all CWP AS members to explore opportunity for national, regional and inter-regional capacity building initiatives. It was noted that such activities should be coordinated and communicated each other as well as through the Secretariat, especially in order to avoid duplication of efforts and to make them complimentary each other.

The meeting considered it necessary to hold Regional workshops similar to that held in Ha Long Bay in order to identify capacity building needs at regional level, especially in Africa, Pacific, Central Asia and Caucasus Regions. FAO was asked to develop such meetings in collaboration with relevant regional organizations and mechanisms. At the same time, the meeting advised to the Secretariat to ask for comments on needs of national capacity buildings, identified gaps in its data collection system in the view of implementation of new concepts within the handbook and potential interests of supporting such activities, when distributing the final draft of CWP Handbook of aquaculture for national feedbacks.

Other issues and actions:

The meeting identified the followings as additional issues that needed to be addressed:

- Developing a communication and formal collaboration with the International Organization of Standardization (ISO) would be beneficially in enhancing the role and visibility of CWP. It was agreed that Mr. Munkejord would initiate informal contact with ISO to seek for the way forward in collaboration with the Secretariat.

- FAO indicated its intention to revise its AQ Questionnaire in accordance with the revised aquaculture CWP Handbook and asked for collaboration and support of the AS members.

- The meeting noted that there is no practical guideline on how to collect data on farm-gate price and other social and economic information and considered it necessary to initiate discussion including experts of social and economic aspects of the sector.

- Some noted the problem in monitoring of aquaculture products with high commercial value only for a specific part of body, e.g. pearls and caviar, when following the FAO standards of data collection of production in live-weight equivalent. Recognizing the current FAO standards were established to monitor contribution to food security by the aquaculture sector, further expansion and modification of monitoring procedure would be needed in the future.

As a whole, the meeting noted the benefit in collaboration at regional level as well as inter-regional coordination and agreed the need to establish Regional Working mechanisms or regional meetings, similar to those established in Asia. As an initial step, CWP AS members were encouraged to utilize capacity and capability available within the region as much as possible whenever planning and implementing the statistical activities.

Closing of the meeting:

The coordinator concluded the meeting with an agreement to finalize the report through correspondence.

**APPENDIX 8, Attachment 1**

## Agenda

1. **Opening and Welcome, logistic arrangements**

   *CWP Secretariats to open the meeting, and local host, SEAFDEC, will provide information on meeting logistics and other administrative arrangements.*

2. **Selection of Chair**

3. **Adoption of the Agenda**

4. **Establishment of CWP-Aquaculture Group – Background information and Review of Terms of Reference**

   *CWP Secretariats to explain the Terms of Reference and operational rules of Aquaculture Group of CWP, as agreed by CWP-23 with further background information. The meeting to review its Terms of Reference developed at the ad-hoc Aquaculture meeting held in October 2008, in the view of Operational Guideline developed by the CWP-23 and revise if necessary.*

5. **Progress in Strategy STA:**

   **5.1. Progress in revising aquaculture component of CWP Handbook**

   *CWP Secretariat to report the progress made to develop a draft to revised aquaculture component of the existing CWP-Handbook on fishery statistic. The meeting should provide feedback and agree how to proceed.*

   **5.2. Strategy-STA**

   *FAO/NACA to report the outcome from the Regional Workshop to identify capacity building need held in Halong Bay, Viet Nam during 16-18 November, 2009. The meeting will discuss for the next step.*

6. **Development of Work plan**

   *The Meeting to discuss and agree on work plan.*

7. **Other business**

8. **Report adoption**

9. **Close of the meeting**

**APPENDIX 8, Attachment 2**

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**APPENDIX 8, Attachment 3**

**Terms of reference, composition, operational aspects of the CWP Aquaculture Group**

**The Terms of Reference:**

1. The CWP Aquaculture Group should have the following objectives:

   - keep under continuous review the requirements for information and data on aquaculture statistics for the purposes of research, policy-making and management, taking inter account *inter alias* their purpose, usefulness, cost, burden in collection and collation, timeliness, quality, confidentiality needs and regional differences;

   - develop standard concepts, definitions, classifications and methodologies for the collection, collation, analysis and dissemination of aquaculture data, information and statistics; and

   - make recommendations for coordination and harmonization of activities in collecting, analyzing and disseminating aquaculture statistical data and information.

2. In particular the CWP Aquaculture Group shall:
   - identify and discuss major issues and requirements on aquaculture information, data and statistics;
   - determine those issues and needs of importance requiring action to improve information, data and statistics for increasing the sustainable contribution of aquaculture to food security, economic development and poverty alleviation;
   - recommend actions to coordinate and harmonize aquaculture information and statistical data collection, collation and dissemination procedures;
   - advise on mechanisms to prepare, facilitate and implement action towards meeting the growing demand for timely and reliable information, data and statistics on aquaculture;
   - advise on the strengthening of international collaboration to assist countries in improving and harmonizing aquaculture information, data and statistics collection, collation and dissemination procedures;
   - advise on the preparation of technical reviews on information, data and statistics on aquaculture of international significance; and
   - advise on the use of statistics for policy formulation and management.

3. The CWP Aquaculture Group should have a primary focus on aquaculture for food production. It shall also provide appropriate guidance for data collection on aquaculture production for non-food use, including species destined for ornamental purposes, alginate, live baits, pharmaceutical and other types of processing for non-food use.

4. The CWP Aquaculture Group should endeavour to assist in improving information on aquaculture´s contribution to stock enhancement, conservation and aquatic biodiversity.

5. The CWP Aquaculture Group should maintain close contacts with other organizations with relevance to and interest in aquaculture and related activities (e.g. WTO, CODEX ALIMENTARIUS COMMISSION, FAO-ES, CITES, OIE, ISO/TC 234, APEC, OLDEPESCA, CGRFA etc.) in order to ensure consistencies with existing systems and procedures and avoid duplication.

**The composition:**

6. The CWP Aquaculture Group shall be composed of experts nominated by those organizations who have a competence in aquaculture statistics. The following organizations will be included in the Group initially:

- the current participating organizations of the CWP (i.e. CWP members) having relevance and/or interest in aquaculture statistics (e.g. Eurostat, FAO, GFCM, ICCAT, ICES, OECD, NACA, SEAFDEC, SPC);

- other regional organizations relevant to aquaculture statistics (e.g. ANAF, APEC, ASEAN, Globefish and FIN Members, NACEE, NEPAD, OSPESCA, RAA); and

- international non-Governmental organizations and regional associations of aquaculture producers and service providers (e.g. FEAP, CAPA).

7. Depending on the topics covered, relevant countries, agencies, stakeholders and interested groups could be invited through nomination by participating organizations.

8. Mechanisms to communicate with and obtain feedbacks from national agencies relevant to aquaculture statistics should be established.

9. Participating organizations may invite other intergovernmental or non-governmental organizations having relevance in aquaculture statistics to be participating organizations. Participating organizations may withdraw from the Aquaculture Group.

10. Although a participating organization of the Aquaculture Group will not necessarily be a participating organization of CWP, the participating organizations to the CWP Aquaculture Group under category 2 above are encouraged to apply for participation to CWP.

**Operational aspects:**

11. The CWP Aquaculture Group would hold its meetings in conjunction with COFI-SCA, on biennial basis. When discussing issues relevant to both aquaculture and capture fisheries, the CWP Aquaculture Group should extend the invitation to participating organizations of CWP.

12. [Participation of minimum three CWP participating organizations should constitute a quorum at any regular meeting.]

13. The CWP Aquaculture Group could establish ad-hoc sub-groups, as appropriate, to discuss specific issues, with participation of experts nominated by participating organizations. Outcomes from ad-hoc sub-groups should be reported to and endorsed by the CWP Aquaculture Group regular meetings.

14. Chair of the CWP Aquaculture Group should report the outcomes of its regular meetings to CWP sessions and should regularly inform the COFI-SCA.

15. English would be used for meeting, report writing and dissemination of outcomes.

**Operational Guidelines corresponding to the establishment of two subject groups**
(Appendix 5 of the Report of CWP-23)

The 23rd session of the CWP established the Fishery Group and the Aquaculture Group in accordance with the CWP Rules of Procedure. These groups were created to enhance the effectiveness of the CWP to address issues specific to capture fisheries and to aquaculture.

OBJECTIVES: Each group should:

1. identify and discuss major issues and requirements on information, data and statistics;
2. determine those issues and needs of importance requiring actions to improve information, data and statistics for policy making in achieving sustainability and enhancing the contribution of individual sector to food security, economic development and poverty alleviation;
3. recommend actions to coordinate and harmonize information and statistical data collection, collation and dissemination;
4. advise on mechanisms to prepare, facilitate and implement actions towards meeting the growing demand for timely and reliable information, data and statistics;
5. advise on the strengthening of collaboration to assist national, regional and global institutes in improving and harmonizing information, data and statistics collection, collation and dissemination; and
6. advise on the preparation of technical reviews on information, data and statistics on issues of international significance and concerns.

STRUCTURE AND TERMS:

The Fishery Group and the Aquaculture Group are established under the governance of the Working Party. The Working Party shall review the operational status of each group at each session.

WORKING ARRANGEMENTS:

1. The Fishery Group and the Aquaculture Group shall meet in conjunction with the session of the CWP.
2. Each group shall elect a coordinator from the participating organizations in the group.
3. The coordinators should attend the session of the CWP, but should they not be able to attend the session, he or she should nominate an alternate from among the participating organizations in the group.
4. The coordinator shall arrange intersessional activities of the group, including meetings, workshops, collaborations with relevant partners and stakeholders, preparation of working papers, communication by correspondence, and web-conference, under general guidance of the CWP session.
5. The coordinator may simultaneously hold a position of Chair or Vice-Chair of the session of the CWP.
6. The Fishery Group and the Aquaculture Group shall report to each CWP session on its own activities, achievements, and recommendations including *inter alia* the proposal of terms of reference and work plans for a subsequent intersessional period, if necessary.
7. The Fishery Group and the Aquaculture Group may request decisions of the Working Party by

correspondence when considered that a delay in decision until the proceeding session would have a significant negative impact on their work.

COMPOSITION:

1. Participation in the Fishery and Aquaculture Groups shall be open to all CWP participating organizations. Each participating organization shall notify to the CWP Secretary of its intention to participate in a group, including its nomination of expert(s).

2. Each of the above groups may identify organizations which have a competence in statistics of relevant to their work and may extend invitations to nominate experts to participate the Group.

OTHER MATTERS:

Operational procedures on voting, expenses, and working languages should follow the principles of the CWP Rules of Procedure. When a question arises concerning a procedure or course of action, a request for guidance or clarification should be delivered to the CWP Secretary, which if necessary will seek guidance from the participating organizations.

**APPENDIX 9**

# REPORT OF THE SECOND INTERSESSIONAL AQUACULTURE GROUP MEETING (Rome, Italy, 14 July 2012)

Opening of the meeting:

The second meeting of Coordinating Working Party on Fishery Statistics Aquaculture subject Group (CWP-AS) was held on 14 July 2012 in Rome, Italy. The meeting was originally planned to be held on 31 March 2012 in Cape Town, South Africa, in conjunction with the 6th session of COFI Aquaculture Sub-committee, following the Rules of Procedures. However due to difficulty in securing adequate participation, the meeting was rescheduled. Four CWP participating organizations (FAO, ICCAT, SEAFDEC, and SPC) attended the meeting, including three FAO sub-regional offices (the Caribbean, Central Asia and the Pacific Islands) also participated as a part of FAO. The list of participants is in Attachment 2.

Election of Chairs:

The SEAFDEC and FAO are currently taking a role of coordinators of the Aquaculture Group. Since SEAFDEC has only one delegate, the meeting elected Mr Jia of FAO as the Chair of this meeting.

Adoption of agenda:

Draft Agenda was adopted without modification, which is in Attachment 1.

Review of progress since the CWP/AS-1:

- FAO:

Mr Zhou of FAO indicated that in 2012 FAO modified the methodology of production estimate of farmed Atlantic bluefin tuna in the Mediterranean based on the data obtained annually from ICCAT and additional import data from Japanese authority. The revised methodology was not only applied for 2011 reference year production estimate but also for the historic data for a number of years, resulting in upwards adjustment for most of the producing countries and the removal of production from France. He also reported to the meeting that there had been great effort in FAO as well as in some national reporting offices in recent years to improve the species level details in national aquaculture statistic data. The total number of species items in FAO database increased from 483 for 2008 to 541 for 2010, allowing better reflection of the status of global utilization of aquatic genetic resources for aquaculture production.

A draft proposal to modify the current International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP classification) used as standard reference for global fishery and aquaculture statistics was presented for comments and suggestions. The proposal is for improved species grouping for data analysis to better suit the needs of aquaculture development monitoring, without the sacrifice of its use in capture production statistics.

FAO also provides technical assistances to regions and regional institutes relevant to aquaculture data collection such as Aquaculture Networks, GFCM SIPAM and RECOFI, through providing mechanisms for online publication and establishment of information database and website, including RECOFI-RAIS and ANAF website.

Mr Halwart provided a brief update on the State of the World's Aquatic Genetic Resources which is being prepared by the FAO Fisheries and Aquaculture Department and will contribute to the Multi-year Programme of Work of the Commission on Genetic Resources for Food and Agriculture. Currently guidelines for the preparation of country reports are being drafted by FAO whilst countries are in the process of submitting the names of National Focal Points who will be responsible to coordinate the preparation of national reports. The Commission's discussions on scope and on strengthening capacities and improving information sources have necessitated the revision of an earlier timeline. The revised

Multi-year Programme of Work calls for the State of the World's Aquatic Genetic Resources to be presented at its Sixteenth Regular Session in 2017.

Mr Van Anrooy of the FAO Sub-Regional Office for the Caribbean and representing also the Western Central Atlantic Fishery Commission (WECAFC) stressed the importance for Latin American and Caribbean region to work together. In that context, a regional workshop on statistics is planned to be held in Chile in June 2013 with support of the Aquaculture Network for the Americas, where the presentation of CWP is considered to be beneficial.

Mr Haydar Fersoy, of FAO Sub-Regional Office for the Central Asia, underlined the emerging need for Central Asian countries to improve frameworks for collection, process, analysis and dissemination in support of sustainable fisheries management at national and regional levels. He also briefed the Session that issues of fisheries and aquaculture data/information are on high agenda of the Central Asian and Caucasus Regional Fisheries and Aquaculture Commission (CACFish), a newly established Article XIV FAO body, In this respect, he stressed the importance of the technical assistance and guidance of FAO for creating enabling frameworks for the CACFish.

Mr Izumi of the FAO Sub-Regional Office for the Pacific Islands briefed on the activities in the Pacific. As one of the outcomes of the Regional Scoping Workshop - Development of a Pacific Regional Cooperative Programme held in Fiji, 11-14 October 2011, in line with the recommendations of the Informal Pacific Meeting held during the Global Conference on Aquaculture in Phuket, Thailand, in September 2010, a regional workshop, which includes aquaculture statistics, aquatic biosecurity and introduced aquatic species sessions, will be organized in the 1st week of October 2012 in cooperation with SPC to strengthen aquaculture data collections and information systems in the Pacific.

- ICCAT

Ms Pallarés of ICCAT explained that the data provided by ICCAT are global data on farming activities. These data are submitted by the Contracting Parties (CPs) of the farms and can include catches from different CPs. Up to now ICCAT is not able to provide a more detail information on farming. It is possible that in the future ICCAT may obtain more specific information once the eBCD be fully accomplished, but to facilitate this information to CWP, ICCAT would need a formal request from FAO and the approval of the Commission taking into account that BCD data are considered confidential.

- SEAFDEC

Mr Siriraksophon of the SEAFDEC reported that SEAFDEC has created the supporting projects more than a decade to improve statistic data and collection in the Southeast Asian Region through the streamlining statistics required by FAO. Several SEAFDEC activities have been implemented not only organizing the RTC meeting but proving the onsite capacity building on data collection to all SEAFDEC Member countries since 2000s. Recently, the specific improvement of data collection such as some economically pelagic species (e.g. Indo-pacific mackerel, Indian mackerel, round-scads, tunas (e.g. oceanic tuna and neritic tunas) have been implemented by relevant Member Countries. In addition, dealing with the international fisheries related issues such as by-catch particular for sharks, and other selected commercially exploited aquatic species, the SEAFDEC is developing the program to improve the data collection that should be reflected to/included in the national statistics. The SEAFDEC indicated its future intension to place more focus on aquaculture statistics to enable to provide more realistic picture of the region. The SEAFDEC disseminated the regional review of State of Fishery and Aquaculture in the Southeast Asia (SEASOFiA) in 2012 with analysis based on data up to 2010. Electronic copy of the SEASOFiA is able to download from the SEAFDEC website.

Corresponding to the question, the SEAFDEC indicated that while it utilizes the SEAFDEC-FAO shared questionnaires for data commonly collected by both organizations, the scope of their data collection is broader, including employments, seed production and production for ornamental purposes, which are collected by separate questionnaires. The ASEAN, as a whole, has made a good progress in improving data collection and reporting during the last 10 years. Still remaining difficulties include low capacity (e.g. Laos, Cambodia), placing low priority in fishery statistics (e.g. Viet Nam), and incomplete coverage (e.g. Philippines, Thailand). SEAFDEC assured its continued help in resolving communication difficulty between FAO and national authorities.

- SPC

Ms Gomez of the SPC highlighted its current mandate regarding data collection and analysis in the South Pacific Region, for both fisheries and aquaculture sectors. The SPC has developed a comprehensive database for coastal capture fisheries for Pacific Islands Countries and Territories (PICTs); these National databases are synchronized with an SPC regional database. For the time being, these databases are only focused on capture fisheries, but including post-larvae capture and culture (PCC) commodities for ornamental purposes, e.g. giant clams, lobsters and shrimps.

Regarding general recommendations arising from the CWP/AS 1 meeting, the SPC mentioned that a regional TCP on capacity building on aquaculture statists was supposed to be formulated and submitted last year. Furthermore, and also as part of the follow-up to the recommendations from the last CWP/AS 1 meeting, the SPC indicated that an FAO/SPC Regional Scoping Workshop focused on the "Development of a Pacific Aquaculture Regional Cooperative Programme" was held in Fiji (11−14 October 2011). The objective of this regional workshop was to engage the governments of PICTs and development partners in the Region in a dialogue to assess the needs and map out a coordinating strategy and actions for all major regional/international agencies working on aquaculture development in the Region. The Regional Workshop identified aquaculture data collection and analysis as a regional priority area and specifically recommended FAO to consider the FAO simplification of the questionnaire templates, the broadening of the scope to include ornamental commodities and other aquaculture products for non-food uses, and the strengthening of efforts to find resources and other appropriate mechanisms to enhance national and regional capacity for fisheries and aquaculture statistics. Other issues to be addressed in the region that were highlighted at this workshop were: 1) the lack of reporting by some countries, 2) the existence of big fluctuations in some commodities' production (e.g. seaweed), 3) the limitation regarding existing capacities and resources on data collection in the region, 4) the difficulties in monitoring on-farm gate prices, and 5) the difficulties in monitoring aquaculture products with high commercial value. The forthcoming FAO/SPC regional workshop on aquaculture statistics and aquatic bio-security, which is planned to be held Fiji in October 2012, will build on those recommendations.

With regards to the steps towards the *State of the World's Aquatic Genetic Resources* preparation, the SPC stressed the importance of streamlining and harmonizing statistics reporting process in order to mitigate burden of national authorities due to data collection, analysis and reporting duplication. As general statistics reporting, the FAO confirmed its acceptance of data reporting in any format as long as necessary information is covered, and suggested to develop the regional questionnaires taking into account regional needs and current data collection practice, following the case of the SEAFDEC-FAO shared questionnaire.

- CWP Fishery Group

CWP Secretary briefly reported the progress made by the Fishery Group (CWP/FS). The meeting of ad hoc group for developing the draft revision of CWP gear classification was held 19-21 October, 2010 in Rome, Italy, with participation of 5 CWP member organizations (FAO, GFCM, IATTC, ICES, SEAFDEC), and experts from ICES/FAO Working group on Fish Technology and Fish Behaviour (WGFTFB). The meeting was chaired by Mr Lassen and agreed the revised proposal of ISSCFG. The report is now available at CWP wiki for CWP member organizations.

The Intersessional CWP/FS meeting was held during 14-16 December 2011 in Rome, Italy, with the participation of 14 experts from 8 CWP member organizations (CCAMLAR, Eurostat, FAO, ICCAT, ICES, NAFO, SEAFDEC and SPC). The meeting focused its discussion on the revision of CWP Handbook and agreed general format, contents and timelines that indicated delivery of the final draft among CWP Members in July 2012. However, there has not been substantial progress since the FS meeting and the process to finalize the draft of revised handbook has been substantially delayed.

Corresponding to question on possibility to collect statistics of wild seeds by capture statistics, it was explained that the current CWP FS Handbook does not request collecting statistics according to their destination. However, it was noted that in the sensitive case, such as glass eels, some organizations including European Inland Fisheries and Aquaculture Advisory Commission (EIFFAC) and ICES collect catch information. The previous discussion within CWP generally agreed that the wild seeds would be better monitored as an input by aquaculture sector.

**APPENDIX 9**

Finalization of draft for the aquaculture component of the CWP Handbook:

The meeting reconfirmed the importance of the Handbook on aquaculture statistics and in general agreed that the current draft covered the necessary information in establishing data collection to monitor aquaculture sector in adequate quality. However, it considered the need of further modifications and clarifications before sending out to countries for their review and feedbacks. Especially, it was noted the need to simplify the introduction and definition of terms. There is some duplication in defining terms that caused confusions. The Handbook should focus on those terms that are relevant to statistics and eliminate others. The meeting also noted the difficulty in defining, collecting and collating farm-gate prices and corresponding statistics due to high complexity of commodities, processing and difference in prices and requested to provide clear guidance.

The meeting affirmed that the broad consultation with countries would be essential. It was considered that this consultation process would require at least two to three months or could be longer if only English version available. The need to develop versions in several key languages was stressed and it was agreed for all members to seek for possibilities to translate the final draft, including FAO sub-regional TCPs as well as collaboration with regional organizations (e.g. OSPESCA).

FAOSEC expressed its willingness to support the translation of the handbook into Russian through FAOSEC financial resources. FAOSLC informed the willingness of the WECAFC secretariat to assist in the consultation process with the countries in the Caribbean and Central America.

In parallel to finalizing the Handbook, the meeting identified the need to prepare a set of new standard questionnaires as well as user friendly practical guideline to implement the new data requirements introduced in the Handbook. This was considered as the first priority for the next term.

In order to complete the whole process prior to the next session of CWP that is planned in February 2013, the following schedule was agreed:

- CWP Members will provide further comments and proposed modifications before the end of July, 2012.
- Secretariat in collaboration with FAO will revise the draft taking into account the comments and suggestions provided by the CWP Members and distribute the revised draft before the end of August, 2012.
- CWP/AS will review and clear the revised draft within two weeks after the delivery through e-mail communications.
- Secretariat and CWP Members will distribute the cleared draft to countries (e.g. national focal points of FAO statistics, focal points of CWP/AS) in the mid September 2012 as the latest.
- Countries should provide their comments and feedbacks within three months, no later than mid December 2012. Secretariat in collaboration with FAO and communicating with other CWP/AS members will integrate the received feedbacks into the final draft promptly.
- CWP/AS will clear the final draft for submission to CWP-24 (February 2013).

Strategy-STA:

Mr Jiansan Jia reported that the Strategy-STA still could not secure fund to support its capacity building activities, regardless the continuous efforts by CWP Members and other collaborative organizations. Regional TCP for capacity building in the Pacific Islands countries was rejected by FAO RAP and the renewed proposal is in preparation. Further supports from CWP/AS members were stressed. The importance to develop a forum among the organizations who were working on aquaculture statistics was noted. In this context, the meeting agreed for each Member to extend the official invitation to other Members for the future meeting.

As reported by FAO and SPC, the regional workshop on aquaculture statistics would be held in conjunction with the aquatic biosecurity meeting in Fiji in October 2012 as a part of Strategy-STA

activities. FAO-SRC indicated that the RAA with membership of 11 Spanish speaking States plans to hold the meeting on statistics in 2013.

Information relevant to aquaculture statistics:

FAO briefly listed the recent developments that might have relevance with aquaculture statistics, which included:

- Global Strategy of Improving Agricultural and Rural Statistics (www.ibge.gov.br/home/estatistica/indicadores/prpa/segundo_texto.pdf) that was adopted at United Nations Statistical Commissions (UNSC) in 2010 promotes integration of agriculture (including fishery and aquaculture) statistics into national statistics collection. As the first step to implement this Strategy in the context of fishery and aquaculture, FAO is promoting i) disaggregation of 'fishery and aquaculture' from 'agriculture' in the population census question on engagement, ii) active utilization of aquaculture satellite module in agriculture census, and iii) enhanced use and links of administrative information (e.g. licenses), GPS and satellite imagery.

- System of Environmental Economic Accounting Central framework (http://unstats.un.org/unsd/envaccounting/White_cover.pdf ) was adopted at UNSC in 2012, which defined how to measure and monitor sustainability of various natural resources including fish resources (including farming fish) and water resources. This can provide an comparable macro indicator on sustainability of resource use and aquaculture sector itself and FAO plans to conduct case study to examine its feasibility and utility for fishery and aquaculture sector management depending on availability of resources.

- The Harmonized System (HS) nomenclature of World Custom Organization (WCO) is commonly used in classifying commodities at customs. FAO succeeded to integrate substantial improvement of commodities details of fish and fishery products into HS2012 that has come into force starting from 01 January 2012. FAO is now actively participating to the negotiation on HS 2017 with specific focus on improving separability of non-food fish and fishery products.

- Central Product Classification (CPC) of UN (http://unstats.un.org/unsd/cr/registry/cpc-2.asp) is a global list of commodities linking to the categories of activities as well as with HS but has been rarely utilized in fish and fishery products. Since FAO decided to utilize CPC as its base, FAO negotiated to make it possible to distinguish fishery and aquaculture origins, which was in principle accepted by expert group and integrated to the proposal to be submitted to the next UNSC.

- FAO renovated its dissemination system of statistics, FishStatJ (www.fao.org/fishery/statistics/software/fishstatj/en). Correspondingly, starting from 2012, FAO will stop maintenance service on FishStat+, while the updated data files were disseminated on 2010 statistics.

- FAO shifted its dissemination of statistics from hard copy print to electronic format. CD-ROM containing all statistics tables and summary booklet will be revised corresponding to the update of any sub-set of statistics, generally in February to March for production statistics and May for trade and commodities. CD-ROM can be accessed at FAO web site: ftp://ftp.fao.org/FI/CDrom/CD_yearbook_2010/index.htm.

During the discussion, it was noted that non-food use of fish and fishery product has been increased and expanded in recent years stressed. Now it was not only for ornamental purposes but traded vigorously for pharmacy use, re-stocking, and source of bio-fuel. The importance for the Handbook to cover these areas was stressed. The meeting noted the need to further revise the Aquaculture satellite module in Agriculture Census Guidebook, in accordance with the new Aquaculture Handbook and requested FAO to coordinate with Divisions who are responsible for Agriculture Census.

**APPENDIX 9**

Development of work plan:

The meeting agreed the priority areas of work in the next term as follows:

- Finalization of Handbook with adequate language coverage;

- Implementation of Strategy-STA, in both meetings and securing funds;

- Working toward revising aquaculture component in Agriculture Census Guidebook;

- Preparation of revised standard questionnaires in line with the new Handbook, targeting testing in selected countries in 2013 and global implementation in 2014;

- Enhancing regional consultation among Members as well as with partners in a Region;

- Submitting the proposal of ISSCAAP revision for consideration of CWP-24; and

- Inputs to the Aquaculture Year in order to make data/information as one of key component.

Other business:

The Secretariat raised the difficulty in securing adequate attendance at the CWP/AS meeting and questioned about the most suitable opportunity to hold the meeting. The meeting reaffirmed its preference to hold the CWP/AS in conjunction with COFI Sub-Committee of Aquaculture, at least for substantive technical discussion. The Secretariat informed that the next CWP/AS should be held in conjunction with CWP-24 according to the rule that established the specialized groups.

The meeting recognized that the language would be a problem for some of organizations such as RAA to participate, while it was noted that the CWP Rules of Procedures indicated English as its working language.

The need to expand CWP/AS memberships were noted and the meeting requested the Secretariat to re-send the invitation to those organizations originally identified as possible participants, including RAA and ANAF.

Close of the meeting:

With the agreement that the Report will be adopted through communication, the meeting was formally closed.

**APPENDIX 9, Annex 1**

## Agenda

1. **Opening and welcome, logistic arrangements**

   *The CWP Secretary shall open the meeting and will provide information on meeting logistics and other administrative arrangements.*

2. **Selection of Chair**

3. **Adoption of the Agenda**

4. **Review of progress since the CWP/AS-1**

   *The Secretary and participating organizations briefly report major activities and changes occurred since the CWP/AS-1.*

   **4.1. Review of progress in recommendations of the CWP/AS**

   **4.2. Review of activities by CWP participating organizations**

   **4.2.1. FAO**

   **4.2.2. ICCAT**

   **4.2.3. SEAFDEC**

   **4.2.4. SPC**

   **4.3. Review of progress in the CWP/FS**

5. **Finalization of draft for the aquaculture component of the CWP Handbook**

   *The CWP Secretary shall table the draft of the aquaculture component of the existing CWP-Handbook on fishery statistics for finalization and adoption by the CWP/AS. The meeting should decide a process of receiving public comments and incorporating them into the final.*

6. **Strategy-STA**

   *Relevant organizations to report the progress in developing regional coordination of aquaculture activities including preparation of the Regional Workshop to identify capacity building need. The meeting will review the progress and agree on the area of collaboration and work plans to be incorporated into the discussion under Agenda 8.*

   **6.1. Asia** (*SEAFDEC to lead*)

   **6.2. Pacific** (*SPC to lead*)

   **6.3. Others regions**

7. **Information relevant to aquaculture statistics**

   *The CWP Secretary will report the recent progress at global statistics forums including the United Nations Statistics Committee. The participating organizations are invited to share the information of any developments relevant to aquaculture statistics. This agenda is information only.*

   **7.1. Global Strategy of Improving Agricultural and Rural Statistics** (*FAO*)

   **7.2. System of Environmental and Economic Account** (*FAO*)

   **7.3. Revision of CPC and HS** (*FAO*)

   **7.4. FAO information dissemination systems** (*FAO*)

   **7.5. Others** (*Any relevant organizations*)

8. **Development of work plan**

   *The Meeting should discuss and agree on a work plan.*

9. **Other business**
10. **Report adoption**
11. **Close of the meeting**

**APPENDIX 9, Annex 2**

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**APPENDIX 9, Annex 2**

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**APPENDIX 10**

# REPORT OF CWP ON FISHERIES STATISTICS INTERSESSIONAL FISHERY GROUP MEETING (Rome, Italy, 14–16 December 2011)

Opening of the meeting:

## 1. Opening of the meeting

The CWP Secretary, Sachiko Tsuji, opened the Meeting and welcomed participants (Attachment 1). Fourteen experts participated from 8 Member Organizations (CCAMLR, EUROSTAT, FAO, IATTC, ICES, NAFO, SEAFDEC, and SPC).

## 2. Adoption of the Agenda and Election of Group Coordinator(s) and other administrative arrangement of Fishery Group

The meeting briefly reviewed the "Operational guidelines corresponding to the establishment of two subject groups" (Appendix 5 of the CWP-23 Report). Taking into account the large overlap of activities and interests between the Fishery Group and CWP's main body, the meeting selected the current CWP Chair, Mr David Ramm (CCAMLR), as the Coordinator of the Fishery Group, and agreed to apply the basic principles and work plans approved at CWP Sessions. The meeting confirmed that this intersessional meeting of the Fishery Group would be devoted to reviewing progress in updating and revising the CWP Handbook of Fishery Statistics. The agenda was adopted without change Attachment 2).

## 3. Review of progress since CWP-23

The CWP Secretary summarized the activities since the CWP-23, which included:

- Two specialized groups, Fishery Group and Aquaculture Group, had been established within CWP and the Aquaculture Group had its first meeting on 2 October 2010 in Phuket, Thailand.
- The meeting of the ad hoc group for developing the draft revision of CWP gear classification was held 19–21 October, 2010 in Rome, Italy, with participation of five CWP Member Organizations (FAO, GFCM, IATTC, ICES, SEAFDEC) and experts from ICES/FAO Working group on Fish Technology and Fish Behaviour (WGFTFB). The meeting was chaired by Mr Hans Lassen (ICES) and had agreed to a revised proposal of ISSCFG. The report is available at CWP wiki for CWP Member Organizations. The revisions to ISSCFG were considered during the Revision of the CWP Handbook (Section 4, below). The FAO Technical Report that provides detailed description and illustration of individual gears will be disseminated once the new ISSCFG is considered at CWP-24 and approved by the CWP.
- Mr Hans Lassen was hired as a consultant to lead and coordinate the revision of the CWP Handbook. In order to share the information, the Secretary set up a wiki page (http://km.fao.org/FIGISwiki/index.php/CWP).
- The Secretary contacted several regional organizations involved in the management of inland water bodies without strong positive feedbacks of their interests in joining the CWP.
- The progress in revising the Rules of Procedure has been slow and the Secretary would take further action in 2012.

Each Member Organisation reported on progress since CWP-23 (Attachment 3).

**APPENDIX 10**

**Revision of the CWP Handbook**

The chair introduced agenda 5 on the revision of the CWP Handbook, noting that the discussion would include three elements: (1) a review of each item that should be part of the handbook, (2) identification of new items that should be part of the revised Handbook, or existing items that could be deleted, and (3) review of the work plan and time table.

The meeting confirmed the following principles for revising the Handbook:

- The Handbook will be a web-based document with continuous/timely updates and internal and external links to relevant information, e.g. FAO Technical Reports
- For those issues beyond the CWP's expertise, the Handbook would follow UN or other authoritative sources for concepts and introduce such issues in a way suitable for fishery and aquaculture application
- All updates to the Handbook will be approved by CWP.

The meeting reviewed the existing Handbook and identified issues required further clarification, modification and enhancements. The issues considered and decisions taken during the meeting are summarized in Attachment 4

Overall, the meeting agreed that the Handbook should contain the following six main components:

- General introduction including a presentation of the capture fisheries Chapter and the aquaculture Chapter
- General concepts applicable to all relevant statistics (mainly following FAO policy)
- Capture fisheries – specific concepts
- Aquaculture – specific concepts
- Socio-economic data for the catching sector, aquaculture and fish processing
- Other matters.

An outline of the contents of each section is provided in Attachment 5.

The meeting identified the following new points that should be addressed in the Handbook:

- Green accounting and changes to the national accounting system including resource ownership
- Socio-economic data
- Ecosystem approach and ecosystem data
- Automatic data transmissions
- Small-scale fisheries
- GIS standards including text on use of fine-scale rectangles and geo-referencing.

The meeting agreed to the following time table for the development of the Handbook, linked to CWP-24 which would be held in February 2013:

- April 2012: First draft from the consultant to be circulated to CWP members for comment
- April–June 2012: Comments from CWP members
- July 2012: Final draft circulated to CWP members
- August–October 2012: Comments from CWP members
- November 2012: Final comments from CWP members
- December 2012: Final draft circulated to CWP members

- February 2013: CWP-24 Consideration of revisions and adoption of the Handbook

## 4. Other business

FAO made a presentation on recent software and database developments relevant to fishery statistics, including tools to assist with the re-allocation of historic catches to EEZs in selected regions, Integrated Catch Information System, Vessel Record Management Framework and FishStatJ.

## 5. Report adoption

The meeting adopted the report. The Chair closed the meeting.

**APPENDIX 10, Attachment 1**

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**APPENDIX 10, Attachment 2**

## Agenda

1. Opening of the meeting

2. Adoption of the Agenda

3. Election of Group Coordinator(s) and other administrative arrangement of Fishery Group

4. Review of progress since CWP-23
   *The Secretariat and participating organizations briefly report major activities and changes occurred since the CWP-22.*

   4.1. Review of progress in recommendations of CWP-23 and other activities of CWP
   4.2. Review of activities by participating organizations

5. Revision of the CWP Handbook
   *Participating organizations responsible for individual section will report the progress made, remaining issues and plan for 2012 for general review, discussion and feedbacks from the meeting.*

   5.1. Catch/Effort related component (IATTC)
   5.2. Vessels/Gear related component (ICES)
   5.3. Social and Economic component (Eurostat)
   5.4. Ecosystem monitoring, impacts on ecosystem (CCAMLR)
   5.5. Overall structure

6. Other business

7. Report adoption

8. Close of the meeting

**APPENDIX 10, Attachment 3**

**Progress of intersessional period**

### *Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)*

CCAMLR recently conducted an independent review of its data management systems as part of the on-going work of CCAMLR to ensure that its information assets are appropriately managed and that data and information are made available in accordance with CCAMLR's rules for data access and use, and in an efficient manner to authorised parties. The review focused on determining risks that are relevant to the organisation's information assets, assessing system controls, and mitigating identified risks using an appropriate international standard as a benchmark. The review recommended changes to the Secretariat's organisational structure, the development of IT and data strategies, the further development of procedures for data processing and quality assurance, improvements to application systems including the CCAMLR website, and upgrades to the Secretariat's IT infrastructure and services.

The recommendations from the review will be implemented as part of the CCAMLR Secretariat's Strategic Plan and through ten specific projects. Three of these projects were initiated in 2011: redevelopment of the document archive; development of an Enterprise Data Model; and redevelopment of the CCAMLR Website. Other projects, scheduled for implementation over the next three years include: Development of CCAMLR's VME database; development of an enhanced data registry system; implementation of web-based forms for the submission of data; extension of the current work relating to quality assurance; and use of virtual servers.

### *Food and Agriculture Organization of the United Nations (FAO)*

FAO has concentrated its efforts in establishing harmonization of concepts utilized in fishery and aquaculture statistics and those in broader cross-sectorial statistics. [Text to be inserted]

### *International Commission for the Conservation of Atlantic Tuna (ICCAT)*

Mr Carlos Palma, Biostatistician of ICCAT, presented a brief description of the progress made by ICCAT in the fishery statistics field over the recent years.

*ICCAT database management system (ICCAT-DB) status*

The ICCAT-DB is in constant evolution. Nowadays, it manages all the information coming from nearly a hundred data request specifications (SCRS related statistical data and Commission related compliance data), as also some additional administrative and publications related information. In total, it covers about 30 databases (nearly 600 tables) managed by a MS-SQL 2008 R2 database server. All the system occupies about 40 GB of physical space and is managed by the IT Research and Statistics Department of ICCAT. The VMS framework, given its proper specificities (real time, confidentiality, etc.) is kept in a separate database server (ORACLE).The Secretariat, is currently working on the full documentation of the ICCAT-DB system (User Guides and Reference Manuals), its consolidation, optimisation, and adaptation to the 2012 data requirements. The long-term goals includes the improvement of the data reporting system (excel forms) by adopting/develop a "WebForm" framework.

*Use and data dissemination policy*

Fishery statistics information of tuna, tuna-like, and sharks species, collected in the ICCAT convention area, is used primarily for scientific advice to the Commission. Data dissemination is made through the ICCAT Statistical Bulletin yearly series (www.iccat.int/en/pubs_sbull.htm). Fishery statistics datasets are also available on the website (www.iccat.int/en/accesingdb.htm) in various formats.

In 2010 ICCAT Commission adopted a Data Confidentiality Policy. This instrument allows cooperating parties to provide much more detailed information of fisheries and research information to the SCRS for improving its scientific advice.

*Standards, concepts and codes*

ICCAT maintains its commitment to adopt the CWP recommendations on the adoption of standard coding systems whenever possible. The most important changes recently adopted include:

- The adoption of the ISSCFG and ISSCFV standards in the various ICCAT records of authorised vessels.
- Task-I nominal catch (live/round weight) defined by the SCRS as the best scientific estimates of the total "wild" biomass removals, are now discriminated into: landings (L), dead discards (DD), live catch for farming/fatting (FA), and post mortality estimates of live releases (DM). The SCRS recommends that ICCAT CPCs report live discards (DL). By default, LD are excluded from the overall nominal catch estimates.
- Task-I nominal catch is now requested by the species based stocks and/or managements units further discriminated by the respective biological sampling areas (detailed maps at: www.iccat.int/Data/ICCATMaps2011.pdf). This new approach will improve Task-I nominal catch estimations by quarter and 5º by 5º squares (CATDIS). Among many uses, CATDIS is also used to reallocate the ICCAT catches into FAO geographical areas/divisions.
- Task-II catch and effort statistics have now minimum quality reporting standards: report all the species catch composition by month with a geographical discrimination of at least 5º by 5º square grid for longline fisheries, and, 1º by 1º square grid for other surface gears.
- The official ICCAT species has been expanded. Besides tunas, tuna like species, and sharks, the species list includes now seabirds, sea turtles, and sea mammals, to monitor and follow up the interactions of tuna fisheries with non-targeted and bycatch species. This is a first step towards an Ecological Management Approach Policy endorsed by tuna-RFMOS.

*Other matters*

The implementation of an electronic bluefin tuna catch documentation scheme (eBCD) has been approved by the Commission in substitution of the current catch documentation system (BCD). The development and testing process will cover all 2012 and it is expected to be fully operational by the 2013 fishing season. This is part of a set of monitoring and control measures that follow the implementation of the "*recommendation by ICCAT amending the recommendation on "establish a multi-annual recovery plan for bluefin tuna in the eastern atlantic and Mediterranean [Rec. 06–05]*".

ICCAT has discontinued (last version published on March, 2010) the update of the FISHSTAT+ dataset available on the web (low demand for this dataset). The Secretariat will study the possibility of publishing the data sources for the new version under development: "FishstatJ".

ICCAT continues to be very active in developing capacity building and assisting developing member States in the improvement of data collection and reporting systems.

***Northwest Atlantic Fisheries Organization (NAFO)***

In the intersessional period NAFO continues to collaborate with CCAMLR in the development of the chapter on ecosystem monitoring, impacts on the ecosytem chapter for the CWP handbook.

As mentioned in the CWP-23, NAFO would continue to work on the user-friendliness in the access to STATLANT 21 in the NAFO Website. NAFO has now made the improvement in this regard. A STATLANT 21A extraction tool has been developed and provides users access to the data in a user friendly way. Users can choose a "basic query" or an "advanced query". The advanced query allows individual selections of country, division, species and year. The tool allows for the output of data in comma-separated values and pdf formats.

The address to access this page is http://www.nafo.int/fisheries/frames/fishery-stats.html and click on the link.

***Southeast Asian Fisheries Development Centre (SEAFDEC)***

SEAFDEC reported the activities undertaken during the intersessional period that SEAFDEC had finished the development of its new regional fishery statistics framework by harmonizing the standards, definition and classification of fishery statistics with those of the CWP. The Fishery Statistics reported by the Southeast Asian countries to SEAFDEC from 2008 onwards have been based on this new statistics framework; and a new database system has also been developed for statistics of 2008 and onwards, separately from previous statistics data. Process for reporting of statistics from countries to SEAFDEC and FAO was also harmonized through the development of harmonized questionnaires, with some questionnaires shared by both organizations, and the streamlined submission process.

SEAFDEC co-hosted the CWP First Intersessional Aquaculture Group Meeting on 2 October 2010 in Phuket, Thailand; and during that time was elected as the group coordinator. However, SEAFDEC expressed difficulties in continue serving as the group coordinator as the organizational competence in aquaculture focuses mainly on the development of technologies to support sustainable development of aquaculture, rather than in aquaculture statistics and information.

**APPENDIX 10, Attachment 4**

**Sections of Handbook**

1. **General introduction including a presentation of the capture fisheries Chapter and the Aquaculture Chapter**
   - Introduction:
     To enhance description on issues relevant to aquaculture. The same should be done for CWP website. If the Handbook would be disseminated in conjunction with CWP web-site, the Handbook part may not need an introduction.
   - Introduction Capture Fisheries statistics
   - Introduction Aquaculture Statistics
   - Description of the data collection systems
     ( T. STATLANT, STATPAC, FISHSTAT SYSTEM OF QUESTIONNAIRES
     Methodology (surveys, census, ..
     Small scale operators (Capture + aquaculture)
     Communication of data (SDMX)
   - Confidentiality
   - Reference to FIGIS/FIRMS

2. **General concepts applicable to all relevant statistics (FAO policy)**
   - C. NATIONALITY
   - D. COUNTRY OR AREAS
   - E. TIME UNITS
   - F. CURRENCIES AND FUNDS
   - G. FISHING AREAS - GENERAL (The Fisheries area section should be split into two with a new section on GIS applications)
   - S. IDENTIFIERS FOR AQUATIC ANIMALS AND PLANTS
   - GIS applications – Lift rectangle text from fisheries areas

3. **Capture fisheries – specific concepts**
   - B. CATCH AND LANDINGS
   - H. FISHING AREAS FOR STATISTICAL PURPOSES
   - K. FISHERS
   - L. FISHERY FLEET
   - M. FISHING GEAR CLASSIFICATION
   - N. FISHING EFFORT
   - Q. METHODOLOGY – Estimation of fisheries data and indicators
     CONVERSION FACTORS FROM LANDED TO NOMINAL WEIGHT
     LOGBOOKS and VMS (methods of data collection)
   - Ecosystem Approach
     Database on VMEs There are data requirements to populate this database
   - Recreational fishingSmall scale (Artisinal) fishing (?)

4. **Aquaculture – specific concepts**
   - J. AQUACULTURE

5. **Socio-economic data** Economic data for the catching sector, aquaculture and fish processing
   - Green Accounting - Resource ownership (Valuation of ecosystem service)
   - P. SUPPLY BALANCE SHEETS ON APPARENT CONSUMPTION
   - R. FISHERY COMMODITIES CLASSIFICATION

6. **Any other business**
   - U. LIST OF FAO YEARBOOKS OF FISHERY STATISTICS
   - V. ACRONYMS

**APPENDIX 10, Attachment 5**

**Summary note on points raised for Handbook**

General information on CWP

A. Fisheries group (Can remain largely unchanged)

   a. Aquaculture culture. Aquaculture to introduce its own tasks (CWP Aquaculture Chair, NACA)

   b. The diagram explaining the link between aquaculture and capture fisheries to be included

B. Catch and landings:

   General agreement of value of catch process diagram but modifications needed. Proposal to include live catch retention/landings in concepts. ICCAT and FAO would come out with proposed change tomorrow morning. Concentrate on catch process and remove a part after landings from diagram. Make a connection with diagram indicating aquaculture and fishing activities and their products developed by Aquaculture Group.

   Term "catch" is used loosely. Include text indicating suitable concepts corresponding to the purpose of statistics, e.g. gross catch to monitor resource impacts, retained catch for food security assessment and landings to monitor economic contribution.

   Noted that the diagram is referred in bycatch definition and SEEAs.

   Commercial .vs. small scale .vs. subsistent operations are raised but agreed that this should be considered in a context of estimation process, not as definition of catch and landings.

   Country name should follow UN standards, with recognition that FAO has codes for both countries and territories, including for Taiwan. Need separation of attribute of catch (i.e. flag country) and ownership of resource (i.e. coastal country).

C. Nationality:

   Country name should follow UN standards, with recognition that FAO has codes for both countries and territories, including for Taiwan. Need separation of attribute of catch (i.e. flag country) and ownership of resource (i.e. coastal country).

D. Country or areas

   Luca's draft uploaded to wiki. List of countries should include the years relevant, e.g. USSR. Include requirement of national data as fleet responsibility, preference in separate over-sea territories.

E. Time units

   Luca's draft uploaded to wiki. Remove reference to Myanmar that utilizes calendar year now.

F. Currencies and funds

   Luca's draft uploaded to wiki. Chapter is not helpful as it is. To be moved under social and economic component.

G. Fishing areas – general

   Luca's draft uploaded to wiki. Expand reference on grid to incorporate new geo-reference systems.

H. Fishing areas for statistical purposes

   Check with the accuracy with RFBs responsible for individual areas (FAO). Where appropriate, apply the same principle to inland water management bodies, and LME management bodies.

I. Conversion factors from landed to nominal weight

This section would be part of the new section on ESTIMATION. Currently it contains multiple types of conversion factors. Remove chapter but include into relevant methodology, estimation sections. CCAMLR, NAFO, ICCAT, Eurostat indicate some available information who should provide a link to Sec. Agreed that the provision of conversion factor is a responsibility of nations/regions and CWP would not be able to provide a standard conversion factor. Handbook should provide links to existing data.

J. Aquaculture

The Fishery Group would respect the outcome from Aquaculture Group. Secretary need to contact the Aquaculture group to provide a general introduction for Chapter 1.
Overall concepts were already well developed and agreed but modification in format would be needed to be consistent with other part of Handbook.

K. Fishers:

Need to check the consistency with UN standards (FAO). Include ISIC. Move under social-economic component. Full-time equivalent would be useful concepts

L. Fishery fleet:

Hans introduced new concept to define fleet, where fishing procedure only defined by gears. Vessels type only contains vessels for fishing operations, supporting vessels, carriers, etc. Tomorrow, further discussion.

M. Fishing gear classification:

Hans introduced ISSCFG WG outcomes. New ISSCFG defines gear based on mechanical process of entangling fish. The report is available on the CWP wiki site. FAO noted that the Technical report on gear classifications will be disseminated in conjunction with CWP approval of new ISSCFG.

N. Fishing effort:

In principle, no major changes.

Hans Lassen explained that within ICES it is becoming increasingly usual to use KW*Hrs as an effort measure and he asked if this measure had wider usage and therefore whether there would be a need to amend the CWP handbook concerning effort measures. No other organisation had identified this measure as particular useful and therefore this is seen – at this stage – as an internal ICES issue and should not be reflected in the Handbook as the Handbook has a global scope.

O. Logbooks:

P. Supply Balance sheets on apparent consumption

To be incorporated into social-economic component.

Q. Methodology:

Do not forget to include correction, e.g. due to non-reporting.

R. Fishery commodities classification:

To be incorporated into social-economic component.

S. Identifiers for aquatic animals and plants:

   Inclusion of hybrid and ecologically related species are discussed, currently no criteria but trying to incorporate all requests. Different stage of one species, e.g. glass eel, should be distinguished by incorporating additional identification of stages.

T. STATLANT, STATPAC, FISHSTAT system of questionnaires

U. List of FAO Yearbooks of fishery statistics

V. Acronyms

**APPENDIX 11**

# CWP Handbook on Aquaculture Statistics

**February 2013**

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## Preface

Aquaculture, the farming of aquatic organisms, is the fastest growing food producing sector in the world, since 1990s. Aquaculture now accounts for nearly half of the world's food fish production to meet the growing global demand for nutritious food fish and to contribute to the growth of national economies, while supporting to sustainable livelihoods of many communities.

The need for aquaculture data and information collection is embedded in the Code of Conduct for Responsible Fisheries (FAO 1995). Reliable and timely data is fundamental requirements to support sustainable aquaculture development. However, due to its rapid growth, many countries have yet struggled in establishing adequate institutional mechanisms to meet the information demands for sustainable management of the sector. There is an urgent need for many countries to adjust the current systems to meet the changing demand for data and information and improve national aquaculture statistics accordingly. At the same time, clear guideline of data collection and monitoring methodologies for aquaculture sector has to been established.

As a response, FAO developed the Strategy and Outline Plan for Improving Information on Status and Trends of Aquaculture (Strategy-STA) through the Expert Consultation on Improving Information on Status and Trends of Aquaculture in 2004, which was endorsed by the third session of the FAO Committee on Fisheries (COFI) Sub-Committee on Aquaculture (New-Delhi, 2006) and subsequently the twenty-seventh session of COFI (Rome, March 2007). The Strategy is a voluntary instrument, global in scope, and applies to all types of aquacultures. The overall objective of the Strategy is to provide a framework for the improvement of knowledge and understanding of aquaculture status and trends as a basis for policy-making and management, and to ensure development that is compatible with good stewardship of resources and the environment. One of main component of the Strategy is to establish global methodologies and standards for aquaculture statistics.

The Expert Workshop held in Halong City, Viet Nam, November 2009 initiated a development of this Handbook with participation of five CWP member organizations (FAO, NACA, SEAFDEC, SPC and EuroStat) and additional 11 invited experts. The task was passed to the Coordinating Working Party on Fishery Statistics (CWP) after the establishment of Aquaculture Specialized Group (CWP-AS) at its 23rd session held in Hobart, Australia, 22-26 February 2010.

The Handbook intends to cover a range of basic concepts, definitions, standard classifications and corresponding codes, as applied to aquaculture data collection and statistics. It was developed to provide the principles at international level. Authorities considering national statistical system are requested to ensure that the system developed incorporates a high degree of compatibility with the standards described here.

The CWP is consistently keeping these standards under review and welcomes the feedbacks and comments of the national authorities on their application at national level. Comments should be addressed to CWP Secretariat.

**APPENDIX 11**

# 1. DEFINITION AND CHARACTERISTICS OF AQUACULTURE

## 1-1. Definition of aquaculture

UN ISIC Rev. 4 indicates aquaculture as "*the production process involving the culturing or farming (including harvesting) of aquatic organisms (fish, molluscs, crustaceans, plants, crocodiles, alligators and amphibians) using techniques designed to increase the production of the organisms in question beyond the natural capacity of the environment (for example regular stocking, feeding and protection from predators)*", where "*culturing/farming refers to the rearing up to their juvenile and/or adult phase under captive conditions of the above organisms. In addition, aquaculture also encompasses individual, corporate or state ownership of the individual organisms throughout the rearing or culture stage, up to and including harvesting*".

The FAO definition of aquaculture is:

***Aquaculture*** *is the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants. Farming implies some sort of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated. For statistical purposes, aquatic organisms which are harvested by an individual or corporate body which has owned them throughout their rearing period contribute to aquaculture while aquatic organisms which are exploitable by the public as a common property resource, with or without appropriate licences, are the harvest of fisheries.*

Here, the key important points are

1. Aquaculture include production of all aquatic organisms, regardless its taxonomic classifications (e.g. fish, molluscs, crustaceans, other invertebrate, reptiles, amphibians, mammals and algae who inhabited in or at water bodies) as well as regardless its final utilization (e.g. food, non-food such as pharmaceuticals and nutrition supplements, ornamental, seed, feeds, other industrial uses)
2. Definition of "aquaculture" includes two main criteria, i.e. i) intervention in the rearing process and ii) ownership of cultivated organisms.

## 1-2. Stages in aquaculture

Aquaculture entails whole life stages of cultivated organisms, as the case of livestock production. The life stages of aquaculture are schematically summarized in Figure 1-1 (De Silva, et. al. 2008).

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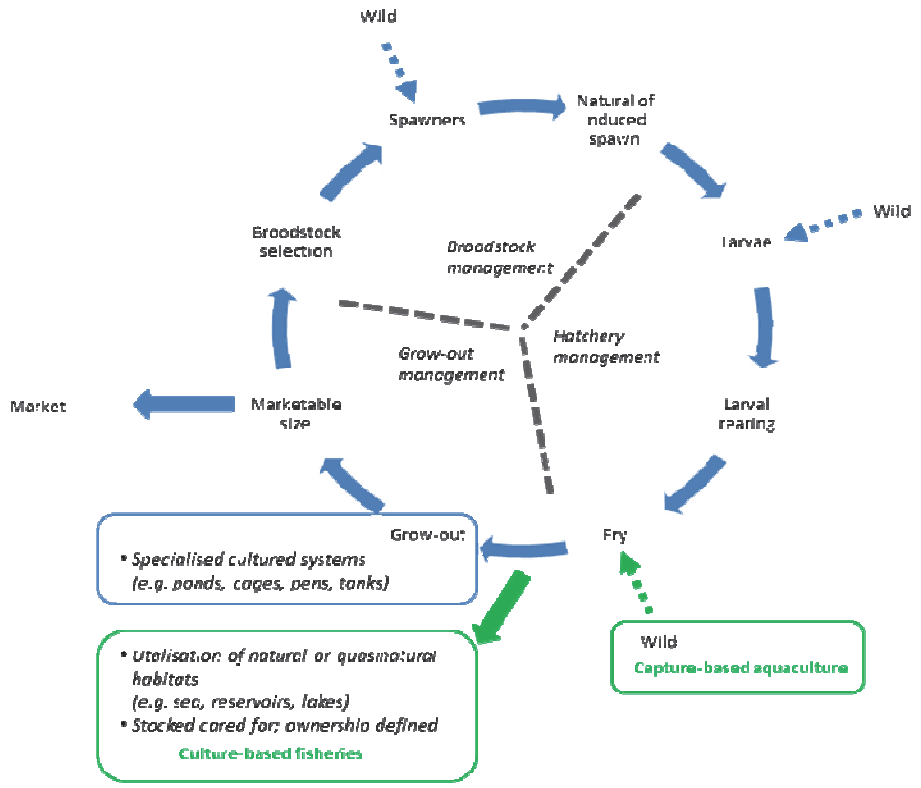


Figure-1-1 Schematic representation of the forms of aquaculture using different life cycles of species (modified after De Silva et al, 2008)

**Seed production** is *a multi-phased process to produce various life stages of organisms (egg, larvae, fry, post larvae, fingerling, juveniles, yearlings) for use in grow-out phase or as seed for stocking of natural resources, involving broodstock management, hatchery, and nursery operations*. Here, **broodstock management** refers to *maintaining matured animals of both sexes in captivity for the purpose of controlled reproduction (independent of whether a first or subsequent generation is produced) as well as keeping young animals destined for the same purpose*. According to species, nursery operations may include multiple phases of production, e.g. fry, fingerling, yearling etc.

**Grow-out** is *the phase where cultivated organisms raised up to a marketable size for food and other commercial purposes (i.e., ornamental, pearls, etc.)*. In some cases, seed from hatcheries may be directly stocked into grow-out facilities.

Total period that organisms are kept in seed production phase and grow-out stage varies widely depending on species.

### 1-3. Classifications of aquaculture

Aquaculture constitutes a complex production system and practice. It ranges from small-scale back-yard ponds to highly sophisticated industrial production units. Here a range of different classifications of aquaculture is shown.

The aquaculture can be classified based on the number of species cultured in a production system, i.e. monoculture and polyculture. **Monoculture** refers to "*the cultivation or culture of a single crop or one species*", while **polyculture** refers "*the rearing of two or more non-competitive species in the same culture unit*".

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Aquaculture is often practiced in association with other agricultural crops or livestock. This type of practice is called **integrated aquaculture**. Integrated aquaculture is a very old traditional, rural farming activity that has evolved to generate synergies between aquaculture and other farming activities such as animal husbandry, crop farming, horticulture and sericulture. These include different types and degrees of integration in which wastes from different farming activities are utilized to enhance the effective utilization of resources, ecological benefits and economic returns to the farmer. **Rice-fish farming** is a unique traditional integrated aquaculture system characterized by concurrent or rotating culture of aquatic animals and rice (paddy) in the same field.

**1-3-1. Intensity of culture practices**

Aquaculture systems range from an intensive indoor system monitored with equipment to the simple release of fry and fingerling to aquaculture facilities. Some of the simplest production systems are the small family ponds in tropical countries for domestic consumption. At the other end of the scale are high technology systems, such as the intensive indoor closed units or the sea cages for growing a variety of species. The stocking density can also vary from few individuals per $m^2$ (2-5 inds/$m^2$) to many individuals per $m^2$ (150 – 200 inds/$m^2$) and from completely unfed to fully fed systems.

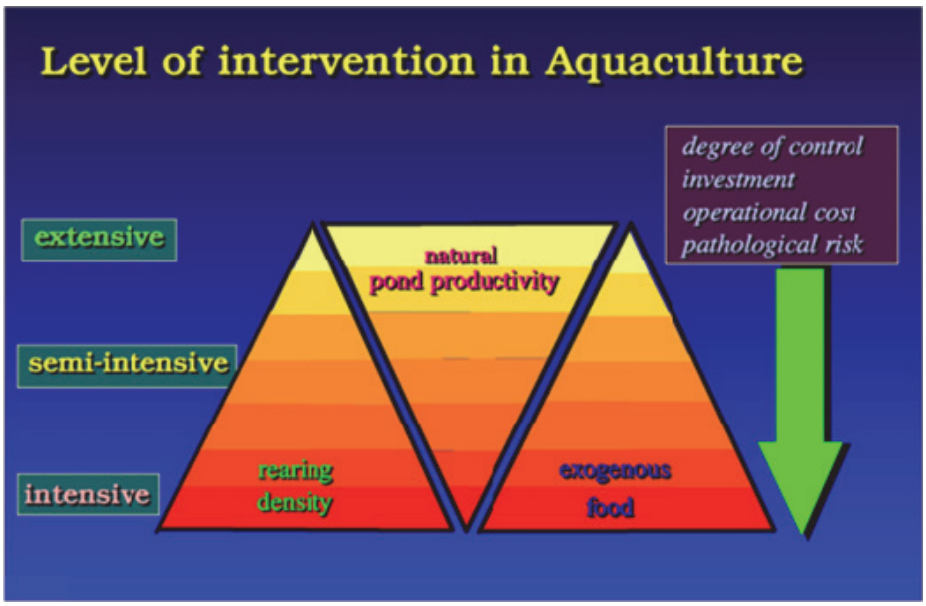
Since this is in continuum, it is difficult to explicitly define categorization to demarcate one from the other. The followings are indicative definition of **extensive**, **semi-intensive** and **intensive** aquaculture.

- **Extensive culture**: *the cultured stock obtains all the nutrition required from the natural food produced in the containment where it is reared and/or through the water supplied to the containment*,

- **Semi-intensive culture**: *the cultured stock is provided a part of nutrition required externally, mostly through supplementary feeding*, (The culture where only the chemical to enhance production including fertilizers and pesticides are provided is considered as "Extensive culture", and

- **Intensive culture**: *all the nutrition that the culture stock requires is provided externally*.

General relationship among rearing densities, reliance on natural productivities and reliance on exogenous food corresponding to the different level of intensity of culture practices can be illustrated below:



### 1-3-2. Scale of aquaculture operations

Aquaculture practices are a continuum to small-scale, medium and large to very large. Small-scale may be considered as farmer family owned/leased, operated and managed farming systems, as opposed to others which may be defined as systems singly and or corporately owned but operated through a permanent labour force. However, there is no explicit and agreed definition.

### 1-4. Interaction between aquaculture and capture fisheries

Aquaculture and capture fisheries interact each other often by sharing common water resources. Aquaculture and capture fisheries are inter-dependant when hatchery seeds are used in stock enhancement (i.e. culture-based fisheries) and as well as when wild-caught seeds are used in aquaculture production (i.e. capture-based aquaculture). Capture fisheries often provide sources of feed used in aquaculture production.

**Culture-based fisheries** are activities aimed at supplementing or sustaining the recruitment of one or more aquatic species and raising the total production or the production of selected elements of a fishery beyond a level which is sustainable through natural processes. In this sense culture-based fisheries include enhancement measures which may take the form of introduction of new species, stocking in natural and artificial water bodies including rice fields or constituting an artificial fauna of selected species, and genetic modification of introduced species. It should be noted that those activities do not necessarily result in an increase of production of targeted segment.

Here, restocking, stock enhancement, and sea ranching are defined as follows:

**Restocking** - the release of cultured or wild caught aquatic species (usually juveniles) into the wild to restore the spawning biomass of severely overfished stocks to levels at which they can once again provide sustainable yields

**Stock enhancement** - process by which the numbers of wild stocks of a particular species in a particular body of water are boosted by releasing large numbers of hatchery raised organisms

**Ranching** - commercial raising of animals, mainly for human consumption, under extensive production systems, within controlled boundaries and paddocks (e.g. in agriculture), or in open space (oceans, lakes) where they grow using natural food supplies. In fisheries: stocking usually of juvenile finfish, crustaceans or molluscs from culture facilities for growth to market size or to maturity in the natural environment. Species usually used are migratory and return close to the point of release (e.g. salmon) or non-migratory and remain for at least a substantial portion of the life-cycle in restricted areas where they enter the local fishery (e.g. red sea bream, *Penaeus japonicus*, etc.).

**Capture-based aquaculture** is defined as *aquaculture practiced with seed collected from the wild*. Capture-based aquaculture includes aquaculture practices based on wild caught seed of crustaceans, molluscs, echinoderms, other invertebrates, finfishes and macro algae (Lovatelli and Holthus, 2008).

For statistical purpose, wild-caught seeds used in aquaculture (capture-based aquaculture) are considered as a product of capture fisheries that is reclassified from natural fish resource to cultivated resources, an input from wild to aquaculture environment. Similarly, seed output from a hatchery when used for restocking, stock enhancement and ranching open space, is considered as an aquaculture production and reclassification from cultivated to natural resources. (See section 2-1 for further details)

The rough concept on how to allocate production to aquaculture and capture fisheries is illustrated in Figure 1-2, with selected examples shown in Table 1-1.

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Figure 1-2. Illustration of the inter-dependency between aquaculture and capture fisheries together with input and output of seed and allocation of production either to aquaculture or capture fishery components.

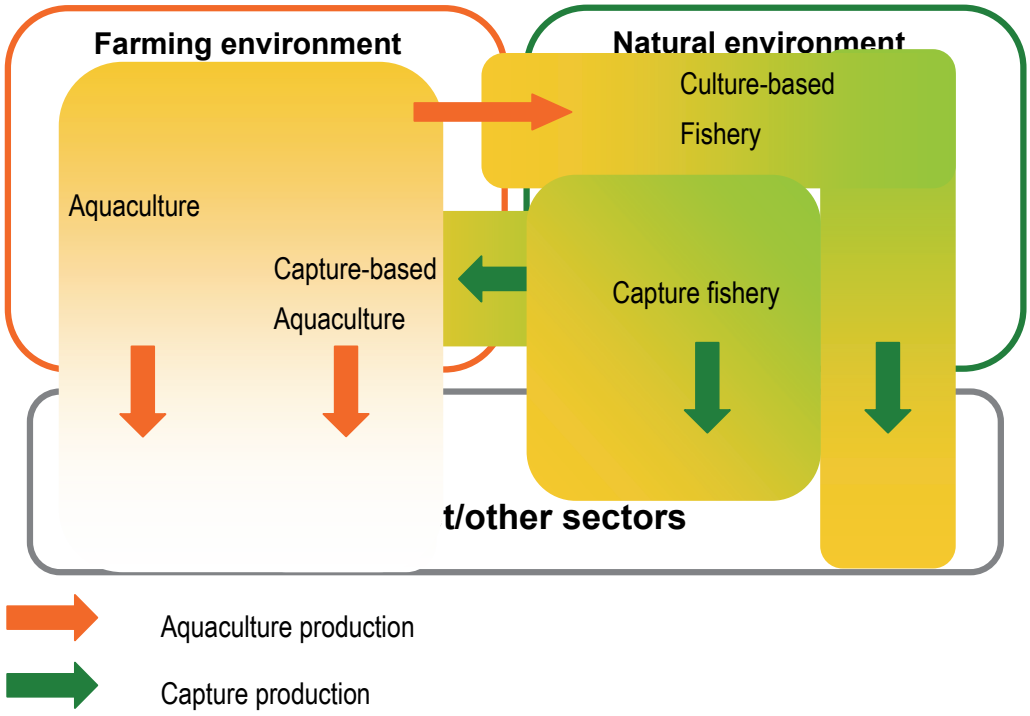

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Table 1-1. Selected examples of activities to be designated either to capture fishery or aquaculture.

| PRODUCTION FROM | DESIGNATION | |
|---|---|---|
| | Aquaculture | Capture |
| Hatcheries | * | |
| Ponds (including inter-tidal ponds) | * | |
| Tanks | * | |
| Raceways | * | |
| Cages | * | |
| Pens | * | |
| Integrated culture production | * | |
| Stocked lakes, reservoirs, barrages and rivers | | |
| - with other enhancement (predator control and/or fertilization | | * |
| - modification with “exploitation rights” | | * |
| - no other intervention without “exploitation rights” | | * |
| - quantities of released seeds | * | |
| Lakes, reservoirs and rivers without stocking | | |
| - with enhancement (fertilization and/or predator control, habitat modification), with “exploitation rights” | | * |
| Rice-fish culture | * | |
| Finfish and other animals harvested from brush parks: | | |
| - managed over time and with other enhancement rights | | * |
| - harvested on an install and harvest basis | | * |
| Finfish and other animals harvested from fish aggregating devices and/or artificial reefs | | * |
| Finfish and other animals harvested from aquaculture using wild captured seeds, including post larvae capture and culture (PCC): | | |
| - quantities of wild seeds captured | | * |
| - the remaining quantity of harvest | * | |
| Molluscs: | | |
| - from managed grow-out site (e.g. poles, ropes, net bags) | * | |
| - from areas not managed but sown with cultured seeds | | * |
| - subject to harvest with “exploitation rights” | | * |
| - subject to open fisheries | | * |
| Aquatic plants: | | |
| - harvest of planted and suspended aquatic plants | * | |
| - from enhanced areas (implanting, predator control, and/or habitat modifications | | * |
| - harvest of natural aquatic plants | | * |
| Aquatic organisms caught in open waters | | * |

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## 2. AQUACULTURE LIVING RESOURCES AND THEIR ATTRIBUTES

### 2-1. General concept on aquaculture living resources

In the aquaculture, similar to livestock, the target organisms are kept within aquaculture facilities during the substantive period before obtaining social and economic values, either through sending out to market, domestic and international trade, consumed as local food supply, or released as seed for stocking. The total period that organisms are kept in aquaculture varies widely depending on species. While a broodstock is a critical component to support aquaculture production, it usually does not directly produce any social and economic value.

In order to fully understand the status and flow of aquatic organisms under aquaculture as well as the deficit and contribution of the aquaculture sector to social, economic and food consumption aspects, it is important to continuously monitor production in a sense of final outputs of seed, food, non-food products together with status and flow of all organisms under cultivation.

For this purpose, the concept of accounting, especially the flow and status of cultivated fish resources as "environment assets[1]" that was developed under the United Nations System of Environmental and Economic Account (SEEA), is considered to be useful and most suitable as standard to monitor aquaculture sector. The SEEA aims to improve the management of environmental assets and to ensure long sustainability of natural resources and environments. Applying the concept of the SEEA for monitoring aquaculture sector will have additional advantage to make the indicators and collected data to be comparable with those in the other sectors, e.g. crop production livestock and processing. The natural resource management including land and water access increasingly requires an integrated holistic approach. Maintaining comparable indicators with other sector would be essential for future development of aquaculture.

**Fish resources (aquatic living resources)** contain two components, i.e. cultivated aquatic resources and natural aquatic resources. The resource is considered as **cultivated aquatic resources** when *growth and regeneration of biological resource is under direct control, responsibility and management of an institutional unit (e.g. farmers).*

Cultivated resources are further divided into **inventories**, the component destined for commercial products and **fixed assets**, the rest, i.e. not directly destined for final commercial products, such as breeding stock.

### 2-1-1. Account table for aquaculture

Table 2-1 presents a basic component to be fulfilled in accounting fish resources within aquaculture that is modified from the SEEA environmental asset account table. Items shown within square brackets are indicative examples for the use in aquaculture

[1] Environmental assets are defined as items of value inherent in the environment and their input that the environment provides to society.

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**Table 2.1 Account table for aquaculture resources (tonnes/numbers)**

| | | **Cultivated resources – fixed assets** | **Cultivated resources - inventories** |
|---|---|---|---|
| **Opening stock** | | [Quantity of resources at the beginning of a time period] | [Quantity of resources at the beginning of a time period] |
| | | | |
| **Additions to stock** | | | |
| | Entry to stock | [Introduction from other monitoring unit(s)] | [Introduction from other monitoring unit(s)] |
| | Growth in stock | [Overall growth in quantity during a time period] | [Overall growth in quantity during a time period] |
| | Reclassifications | [Seed of wild origins] | [Introduction from wild] |
| | | | |
| **Reductions in stock** | | | |
| | Gross harvest | [Quantity harvested during a time period] | Not applicable |
| | Catastrophic losses and uncompensated seizure | [Loss in quantity due to extreme events, diseases] | [Loss in quantity due to extreme events, diseases] |
| | Reclassifications | [Released seed for stocking, escapement etc] | [Export of breeding stock to other monitoring unit(s)] |
| | | | |
| **Closing stock of aquatic resources** | | [Opening stock] + [total additions] – [total reductions] | [Opening stock] + [total additions] – [total reductions] |

This table should only cover the organisms of interest in aquaculture production, including seeds and broodstocks. The flow of feeds should monitor in the separate table.

Increases mainly come from entry (of seed) from other farms or other countries, growth in stock (in both size and numbers) and introduction of wild caught seed recorded as reclassification. In this table, growth includes natural loss for convenience of monitoring. Therefore, when natural loss, e.g. mortality during cultivation in generally expected level, exceeds increase in size and number of cultivated organisms, the growth during a given period can be negative. Where it possible, it is appropriate to record growth (i.e. natural addition) and natural loss (i.e. natural reduction) separately.

When wild caught organisms are introduced either as seeds or breeding stock, this should be recorded as a 'reclassification' from natural to cultivated resources (i.e. addition to aquaculture stock). In the case of ranching, stocking and enhancement of natural resources, cultured seeds released into the wild should be recorded as a 'reclassification' from cultivated to natural resources (i.e. reduction from aquaculture stock). Fish that escape into external environment should also be considered a 'reclassification' from cultivated to natural aquatic resources. Unexpectedly large losses due to disease or natural catastrophic events should be considered 'catastrophic losses'.

The same concept is used in monetary term to monitor economic status changes.

**2-1-2. Monitoring units**

While account tables can be compiled in any level of details for any of dimensions, it is preferable to compile them in the least aggregated level as possible, e.g. separate table for each species cultivated by

individual farm and type of facility, for allowing full flexibility and utility at analysis and later compilation. In such case, output from individual farm, regardless the stage and destination of product should be considered as harvest. Similarly the fry, fingerling, yearlings and broodstock introduced from other monitoring units should be recorded as entry to stock.

In all cases a consistent way of counting and common unit of measurement should be used within one account table although the suitable unit of measurement may vary by type of aquatic resource and type of aquaculture. For example, in the case of seeds and ornamental products, numbers could be more readily available and suitable measurements.

At the time of compilation into national and sub-national statistics, it may be necessary to convert estimates of the biomass into number and vice versa. It is strongly encouraged to collect conversion factors for this purpose.

**2-1-3. Aquaculture production**

In the compilation of national and sub-national statistics from account tables, the aquaculture production is considered as sum of harvest and overall balance due to reclassification with wild resource (i.e. difference between wild caught seed and seed utilized for stocking).

The products that are transferred from one monitoring unit to others within an aggregated framework (e.g. sub-national area, countries, etc.) will be cancelled out by having matching figure between harvesting unit(s) and receiving unit(s). When account tables are only available for a part of units within an aggregated framework, the relevant account tables should be raised prior to compilation. For example, when 70% of hatchery production and 90% of grow-out production complete individual account tables, prior to combine two tables, each table should be raised to 100% production.

In fishery and aquaculture statistics, the production is converted into live-equivalent weight, in order to ensure compatibility among different type of processed commodities (e.g. simply gutted, gutted and headed, filleted, frozen). Direct measurement of harvest in live-weight equivalent at the time of harvest is ideal. When measurement is only possible on processed products, the supplementary survey to determine conversion factor from processed weight to live-equivalent weight would be useful. General conversion factors of typical product weight to live-weight equivalent for major fishery commodities are available in Table XXX.

When multiple products are produced from one animal (e.g. pearls and shell meat, caviar and sturgeon meat), it must be careful to only include quantity converted from one of the products, in order to avoid double-count of production by applying.

**2-2. Attribute of aquaculture production**

**2-2-1. Ownership/ nationality of production**

For statistical purpose, the aquaculture production is attributed to the nations within whose territories including Exclusive Economic Zones where the farming facilities are located, regardless of the nationalities of owners of facilities. It should be noted that this is not exactly comparable with the attribute of capture production, where the United Nations Statistical Commission decided in 1954 that the fish catches should be assigned to the country of the flag flown by the fishing vessel, regardless the location of catch, which the CWP is in principle in support.

Although aquaculture operations are currently not undertaken in the high seas area the development of such operations in time to come cannot be excluded. Appropriate criteria to indicate attribute production in such cases needs to be established.

**2-2-2. Time unit**

Aquaculture production can be measured either based on a life cycle of cultured organisms or based on a certain time period, e.g. year, quarter, months etc. While the former is useful for monitoring and control at a farm level, the production statistics generally uses a fixed time period.

For compilation of national aquaculture production, total production as a sum of harvest and overall balance due to reclassification with wild resource (i.e. difference between wild caught seed and seed utilized for stocking) in annual term should be recorded as a minimum.

The calendar year, i.e. the period between 1 January and 31 December (according to the Gregorian calendar) is the most commonly used time unit in fishery and aquaculture statistics. When other definition is used for compilation of statistics, the definition of time unit used should be clearly defined and described.

**2-2-3. Culture environments**

Culture environments are defined according to the salinity of water that is mainly utilized at the farming facilities, noting that a utilization of multiple types of water within a single farming unit is not unusual.

**Freshwater Culture -** Freshwater culture refers to the cultivation of aquatic organisms where the end product is raised in freshwater, such as ponds, reservoirs, rivers, lakes, canals etc., which has a constant negligible salinity. Earlier stages of the life cycle of these aquatic organisms may be spent in brackish or marine waters.

**Brackishwater Culture -** Brackishwater culture refers to the cultivation of aquatic organisms where the end product is raised in waters of fluctuating salinity in a range between 0.5 ‰ and full strength seawater. Culture utilizing relatively high salinity water originated from inland water bodies should be considered as brackishwater culture. If these conditions do not exist or have no effect on cultural practices, production should be recorded under either "Freshwater culture" or "Mariculture". Earlier stages of the life cycle of these aquatic organisms may be spent in fresh or marine waters.

**Mariculture -** Mariculture refers to the cultivation of the end product in seawater, such as fjords, inshore and open waters and inland seas where salinity is generally high and is not subject to significant daily or seasonal variations. Earlier stages in the life cycle of these aquatic organisms may be spent in brackishwater or freshwater.

The breakdown in culture environment (freshwater, brackishwater and marine water) is not simple and is often left to the subjective judgment of reporters. Many farming located in the inland have high salinity even exceeding 20 ‰, while some farming located in coastal areas and internal waters are actually using freshwater. There are many areas where the salinity levels fluctuate over the year.

**2-2-4. Location of production**

FAO asked countries to report the fishery and aquaculture products according to their location of harvest using FAO Major Areas for Statistical Purposes**.** FAO Major Areas was established to describe global distribution of fishery and aquaculture production, with eight inland areas corresponding to the inland waters of the continents and nineteen marine areas covering the waters of the Atlantic, Indian, Pacific and Southern Oceans with their respective adjacent seas. This information is especially important when a given countries facing to the multiple FAO Major Areas to understand geographic distribution of harvest correctly (e.g. Pacific and Atlantic side of production for the USA, Canada, and Mexico).

In a case of aquaculture production, the FAO Major Areas should be determined based on location of farming facilities, regardless the type of waters utilized. When on-land farming facilities are located close to the coast and mainly rely on water supply directly pumped from the marine area, their production

should be allocated to the relevant marine areas. Otherwise, production of on-land facilities should be allocated to the relevant inland area. However, when a given country is surrounded by only one marine Area, it is possible to assign all mariculture production to the relevant to marine Major Area and the rest to inland Major Area.

**2-3. Farming systems/ culture methods**

A farming system in aquaculture means any form of improvise or devise that is utilized to contain the cultured organisms, irrespective of the stage of its life cycle, in a given space. Very diverse containments are used in aquaculture operations depending on types of aquatic organisms cultured and the stage of its life cycle. Size of containments implies indicator of holding capacity and is to be used to standardize production efficiency and utilization of waters, fertilizers, feeds and other resources. This information when utilizing together with production will also provide an indicator on culturing intensities.

There is no consensus view on which of surface area under culture or water mass within containment would be more appropriate standard measure of farming capacity. Due to easiness to collect information, majority of existing data collection adopt surface area under culture as a standard measurement. The area under culture can change considerably during the year and it is recommended to measure the area at their final production phase.

**2-3-1. Classification of farming systems**

***Ponds***
Ponds are natural and/or artificial structures, on land, that are capable of retaining water for rearing of stock. Ponds often consist of some form of banks or dykes. Under this category ditches, flood plain depressions, derelict mining pools and similar structures are included. Pond culture is usually carried out in stagnant waters with periodic water exchange or water flushing that is done through the pond inlets and outlets. Some pond culture, e.g. trout pond, may have a high water refreshment rate.

The measurement unit should refer to number of ponds, water surface area and water volume.

***Tanks***
Tanks are artificial units of structure capable of holding and interchanging water which are generally built above ground level and can be made of various materials (e.g. bricks, cement, concrete, fibreglass, plastics, wood, asbestos, metal, etc.), in various shapes and sizes. They are used in hatchery, nursery and grow-out operations.

The measurement unit should refer to surface area and water volume, and water turnover rate is important parameter to collect.

***Pens***
Pens refer to areas of a water body (e.g. in shallow lagoons, but also inland e.g. in lakes, reservoirs) that is fenced using structures (nets, wooden bamboo) fixed to the bottom permitting free water exchange. A pen generally encloses a large volume of water.

The measurement should refer to surface areas and information on setting environments (whether in flowing water, still water, or marine water) may be important.

***Cages***
Cages refer to open or covered enclosed structured with net, mesh or any porous material which allows natural water interchange. These structures may be floating, suspended, or fixed to the substrate but still permitting free water interchange. Cages are either supported by frameworks made of metal, plastic, bamboo or wood, or are suspended by stakes at its four concerns in open water bodies or in ponds. Cages use both for seed and grow-out production.

The measurement unit should refer to surface area and volume, and information on setting environments (whether in flowing water, still water, or marine water) may be important.

***Raceways***
Raceways are long and narrow rectangular tanks usually constructed with bricks and concrete and artificial material above ground, that permits a rapid flow of water. To water turnover rate is generally in excess of 20 changes per day.

The measurement unit should refer to surface area and water turnover rate is important parameter to collect.

***Enclosures***
Enclosures refer to natural water areas (e.g. natural bay), where the shoreline forms all but one side, confined by a net mesh and other barriers allowing free water interchange and distinguished by the fact that enclosures occupy the full water column between substrate and surface.

The measurement unit should refer to surface areas and information on setting environments (whether in flowing water, still water, or marine water) may be important.

***Lakes, Reservoirs, Dams***
Lakes, reservoirs and flood plains where stocking of aquatic animals are conducted on the regular basis, the stocked animals are confined in the stocked water bodies with management interventions; the products are harvested exclusively within the people with entitled ownership of the stocked material. Stocked material should compose the significant proportion of the total fish production from the water body.

The measurement unit is the water surface area.

***Flood plains***

***Barrages***
Barrages are semi-permanent or seasonal enclosures formed by impervious man-made barriers and appropriate natural features.

The measurement unit should refer to surface areas and information on setting environments (whether in flowing water, still water, or marine water) may be important.

***Irrigation systems (channels and ditches)***
Irrigation channels and ditches refers to water bodies that are used for fish aquaculture but their primary function was for converting water for irrigation purpose such as channels and ditches excavated or constructed with concrete in the ground.

The measurement unit should refer to surface area.

***Rice-fish paddies***
Rice-fish paddies refer to paddy fields used for culture of fish and other aquatic animals, including both concurrent culture of aquatic animals with rice plantation and seasonal rotation of fish and rice crop farming in the same paddy field.

The measurement unit should refer to surface area.

***Suspended/hanging systems***
Suspended/hanging systems are floating structures as rafts built of wood, bamboo and long lines with seaweed nets or hanging lantern nets, growth ropes, pearl nets, net bags or trays, normally equipped with

floats and safely anchored in a sheltered coastal area. This system may be used for the suspended culture of seaweed, molluscs and other animals such as sea cucumbers.

The measurement unit should refer to the number of farming structures, surface areas and length of lines or ropes.

***Off-bottom systems***
Off-bottom systems are structures like trestles and long lines installed on stakes impaled in the seabed or inter-tidal zone. Culture nets, lantern nets, growth ropes, pearl nets, net bags or trays are usually used in these structures to farm seaweed and molluscs.

The measurement unit should refer to the number of farming structures, surface areas and the length of lines or ropes.

***On-bottom systems***
On-bottom systems refer to the farming of molluscs such as clams and oysters, and sea weeds, and holothurians directly seeded on muddy or sandy areas in the inter-tidal zone or on the seabed.

The measurement unit should refer to farming surface area.

**2-3-2. Classification for statistical purpose**

For statistical purpose, the farming facilities can be aggregated into the following groups:

- Ponds
- Cages, raceways, tanks, enclosures, pens,
- Lake, reservoirs, dams, barrages, flood plains, irrigation systems
- Rice-fish paddies (rice fields used for aquaculture)
- Suspended/hanging systems, on-bottom systems, off-bottom systems

The measurement unit in principle should refer to farming surface area that means whole area occupied by farming facility system. Where appropriate, measurement unit in volume and length should also be used in addition.

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## 3. ADDITION AND REDUCTION OF AQUACULTURE FISH RESOURCES

Aquaculture contributes to food security, poverty alleviation, economic development and social wellbeing of many people in the world. For effective management of aquaculture within national policy, it is necessary to monitor a full spectrum of such contribution. The following three sections describe types of information needed to monitor aquaculture sector. This section describes what information and data are relevant to be considered and collected for statistical purposes, in order to monitor change of aquaculture fish resources, both fixed asset and inventories. Final harvest, i.e. output products, from aquaculture can be either as food or for non-food use.

### 3-1. Aquaculture output products – Gross harvest

This handbook considers three general categories of aquaculture output products – namely, production for food, production for non-food uses, and production of seed for further aquaculture practices or for release to the wild environment. This section mainly describes the necessary statistics to quantify the gross harvest, i.e. production, in each category.

#### 3-1-1. Output products for food

The vast majority of aquaculture production is destined for human consumption. Statistics quantifying aquaculture production for food is in principle quantity in biomass by species, in terms of live weight equivalent. Thus, for molluscs and crustaceans, the weight of the shell should be included in the production weight. Suitable conversion factors can be used to convert meat weight to live weight equivalent and vice versa. Aquatic plant production should be reported as wet weight. [List of indicative conversion factors]

The final food product as output from aquaculture often comes in form of processed food, where the value of products is generally linked to the volume. More accurate statistics can be obtained on the quantity of processed weight by commodities or by species. [International Standard Statistical Classification of Fishery Commodities]

All statistics of quantity of products should be reported together with farm-gate value. This indicates the amount that the farmer would expect to receive for the harvest before any transportation costs are included. This concept is widely accepted but often quite difficult to collect in actual situation. Thus, it is useful to maintain and report brief explanation on what is exactly measured by the farm-gate value.

All statistics of quantity and value of products should be stratified by species, environment, farming systems and destinations. Here, the destination could be two fold; i) for domestic markets (local use) and ii) for international markets (exports).

#### 3-1-2. Output products for non-food use

Non food aquaculture products can further be classified as follows:

1. Ornamental (or aquaria) organisms. This can be finfish, other aquatic animals such as molluscs (giant clams, trochus, etc.), crustaceans (lobsters and shrimp of genus like *Lysmata* sp., etc.), live rock and corals or aquatic plant. Usually these are reported in numbers but live rocks and some live corals occasionally may be reported as weight.
2. Raw materials for jewellery, apparel, handicraft etc. This would include cultured pearls, shells, corals, skins etc., reported in either pieces or numbers.
3. Industrial use. This includes raw material intended for further processing, whether for pharmaceutical, food processing, or production of chemicals that are usually reported in product weight.
4. Others. This includes production of fingerlings as feed for feeding carnivorous fish.

In principle, the same standard statistics as food product should be collected for the products for non-food use, though quantifying non-food aquaculture production presents some special circumstances. In particular, ornamental fish and pearls are traded and reported by numbers and not by weight.

Statistics to be collected include quantity in either number or products weight, and the farm-gate value. Where applicable, WCO standard unit of quantity should be referred. [WCO HS 2012 for fishery and aquaculture commodities] All statistics should refer to stratifications by commodity, species, environment, farming system and by destination (i.e. local use or for export), in the same way as those for food-use.

**3-1-3. Output of seed product**

Seed production includes eggs, larvae, post larvae, fry, fingerling, juveniles, yearlings spats, seedlings, propagules and broodstock. Seed production is often measured by numbers, although both may be applicable for broodstock.

Seed is used both for aquaculture and stock enhancement. In the other words, seed production as output can be either harvest that would be utilized as inputs of aquaculture production in different unit(s), or seed to be released to wild that to be recorded as inputs to wild resources. Therefore, it is important to collect information on destination in addition to the quality and quantity of seed produced. Statistics of seed production should include all hatchery produced seed. The information on the origin and the genetic status is also important in monitoring and managing the sector.

Statistics to be collected for seed include quantity in number and farm-gate value, stratified by species, environment, farming system, and destination, and if possible with the addition on the information on life stage of juvenile form.

The destination of seed product should at least identify:

- Released to the wild for restocking and/or stock enhancement (culture-based fisheries)
- Released to a controlled environment for recreational purposes (e.g. a trout farm)
- Destined for domestic aquaculture practices (on-growing)
- Exported, with destination country where available.

Statistics to be collected for brood stock include quantity in number and biomass and farm-gate value, stratified by species, environment, farming system and by destinations, in the same way as those for food-use.

**3-2. Seeds and broodstock -- Inputs to aquaculture**

Seed is a major input to aquaculture fish resources. Seed represents many different early life stages of cultured organisms ranging from fertilized eggs to post-larvae (shrimp), spat (molluscs), glass eels/elvers (eels), smolts (salmon), fry and fingerling (finfish), spores/seedlings (sea weeds), etc., depending on the type of species cultured. Seed could come from either hatcheries or from the wild.

The components that are required for monitoring of the sector include not only quality and quantity of seed but also their origin and genetic status. At least for statistical purpose, the seeds and broodstock of locally produced and those of imported should be clearly separated. According to the level of management needs, the “local” can be defined in sub-national level, for example, at province level: i.e. distinguishing those originated in one province of a country and used in another province from those produced and used in the same province.

Seed and broodstock from the wild is input to aquaculture but at the same time, output from capture fishery, i.e. capture production, that should be recorded as reclassification from natural to cultivated resources in fish resource asset account. This quantity is important for both aquaculture and capture

fishery sectors managements. In general seed quantity should be collected in number, since this quantity in biomass is negligible in most cases, However, when the quantity is substantial (e.g. broodstock, tunas) and/or target organisms are commercially important, concerned in their stock conditions and/or ecologically sensitive (e.g. tunas, eels, some groupers), both quantity in both number and biomass should be collected.

The data to be collected for seed input include quantity in number and purchase value by species and separated between those locally produced and those imported. In the case of wild-caught seed, especially for tunas, eels and groupers, quantity in biomass should be collected in addition to the normal statistics described above.

Statistics of broodstock input should be collect separately from seed input. Data to be collected are quantity in number, quantity in biomass, and purchase value by species and by origin.

### 3-3. Stock of aquaculture fish resources

In the aquaculture, similar to livestock, the target organisms are kept within aquaculture facilities during the substantive period before obtaining social and economic value, either through sending out to market, domestic and international trade, consumed as local food supply, or released as seed for stocking. In order to fully understand the status of aquaculture sector, it is strongly recommended to collect the stock size of cultured fish resources at a certain time, usually at the beginning or at the end of defined period for statistics.

The statistics to be collected should include estimated quantity in biomass that is kept at farming facility at the time of monitoring, separated by species, environment, and farming system.

### 3-4. Losses of aquaculture fish resources and farming facilities

Aquaculture production can be lost, full or partially, due to various reasons including disease, natural disasters, and other environmental impacts. Despite the significant volume of loss in aquaculture production as per above mentioned causes, there has no statistics been collected systematically to monitor such losses.

As the first step, the countries are encouraged to collect the following categories, if possible, systematically:

- Estimated quantity in biomass and value of loss of cultured organisms due to disease, separated by name of diseases, species and environment
- Estimated biomass and value of loss of cultured organisms due to natural disaster and other environmental impacts, separated by type of events, species, and environment
- Estimated value of loss in culturing facilities/equipments and number of culturing facilities/equipments affected due to natural disaster and other environmental impacts, separated by type of causes and environment

Within SEEA, the first two points of such losses should be recorded in catastrophic losses of aquaculture fish resources.

## 4. SOCIO-ECONOMIC ASPECTS OF AQUACULTURE

The socio-economic information on aquaculture sector is essential to measure and monitor the sector's contribution to food security and poverty alleviation, and to plan and manage the sector in long-term sustainable manner. Census and Structural Business Statistics surveys may provide an opportunity to collect such information extensively but such census/survey only occurred with a certain, rather long intervals. When relying on census and cross-sectorial surveys to obtain socio-economic information, it is necessary to establish some way to monitor changes of key indicators between census/survey years.

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**4-1. Employment**

An employee is one whose main activity during the reference year was to be in paid employment or self-employment. Currently, FAO is collecting the employment in aquaculture with the following classifications (see CWP Handbook on Fisheries):

- Full-time farmers receive at least 90% of their livelihood from farming activities (including employment at farms) or spend at least 90% of their working time in that occupation.
- Part-time farmers receive at least 30% but less than 90% of their livelihood from farming activities (including employment at farms) or spend at least 30% but less than 90% of their working time in that occupation.
- Occasional farmers receive under 30% of their livelihood from farming activities (including employment at farms), or spend under 30% of their working time in that occupation.

However, it is noted that this classification is not necessarily always suitable and/or applicable to actual employment and working situations in aquaculture sector.

Where possible, further data collection on employment, especially through full utilization of census together with follow-up surveys, will support in developing better understandings on social and economic contribution and issues of aquaculture sector.

One area of potential improvement is to incorporate additional classifications of employment as follows:

- Employee : person in paid employment,
- Own-account worker : person who is working on his/her own account, or with one or more partners, in a self-employment,
- Contributing family worker : person who is working in a self-employment in the holding operated by a member of the same household,
- Others

The data to be collected may include age, gender, average wage, and educational level, together with number of people engaged by these categories. Such information could be collected at the time of population census by separating aquaculture from agriculture as independent sector as well as other surveys including agricultural census, fishery census, and rural surveys.

**4-2. Structure of farming operations**

Currently, most of countries require registration of aquaculture production facilities with the competent authority also providing a range of data and information including ownership, location of farming facilities, type and size of farming systems in operation, water access, etc. In order to understand the structure of farming operations and their changes according to time, the information on existing farming facilities by farming systems and type of production units is considered as useful initial step. Here, production unit will be defined according to individual national legislation relevant to registration and licensing for aquaculture activities and may not be consistent among countries.

The information that is considered to be useful to collect includes:

- total numbers and areas of production units, separated by household units and non-household units,
- gender, age and national/ethnic group of the production unit owner,
- tenure type of production unit,
- types and surface areas of farming systems within the production unit,
- species cultivated,
- water sources, main water type and annual average volume in use, and
- number of employees by gender

It would be also useful to collect information separately according to the status of aquaculture commercial activity and/or their organizational status defined under national legislation, e.g. farm holding; business enterprise; large corporate farms; franchise operation (i.e. small farmers operating units within a corporate large farm); part of a cooperative/ producer group; etc.

### 4-3. Investment

The information on investment is essential for sustainable development and effective management of aquaculture sector, especially for small scale holdings. Such information could be available within the government. Although no standard concepts and procedure exist for aquaculture sector, the CWP strongly encourages countries to make efforts to collate and maintain the information on investment relevant to aquaculture sector in a systematic way, where applicable.

## 5. OTHER KEY FACTORS AFFECTING AQUACULTURE PRODUCTION SYSTEMS

Better monitoring, management, development and planning of the aquaculture sector largely depend on the availability of accurate information on the input requirements for practicing aquaculture. Although there is an array of inputs is used in aquaculture, the section quickly touches on need of data for monitoring the sector performance, with several key inputs including (i) seed and broodstock, (ii) water (iii) feed and fertilizer, (iv) antibacterials and (v) energy. Although labour is an important input to aquaculture, all human aspects are discussed under Section 7.

### 5-1. Water

Water is an essential requirement to aquaculture production. In many areas of the world, there is a limited, and potentially expensive, supply of fresh water. Therefore there will be the possibility of resource competition among various food-producing sectors as well as other users of water. It will become increasingly important for aquaculture to be able to quantify its use of water resources in order to justify its use relative to other potential uses.

The data elements necessary to measure this use remain to be developed but it is expected that this will be an issue of increasing importance in the future. Furthermore, the environmental impacts of the use of water for aquaculture through the discharge of effluents into common waters might also need to be considered. However, collecting such data and information will be difficult and may not be realistic and practical in many places, conditions and occasions.

At this moment, there are no internationally agreed standard how to measure the utilization of water by aquaculture. FAO is currently working on defining a set of indicators of water use and benefits obtained from such water use for inland fishery and aquaculture.

For farming facilities including ponds, tanks, and raceways, the standing stock of water in use at farming facilities, turn-over rate, specification of inlets and outlets (e.g. directly from and to wild water body, irrigated waters etc.), and physical, chemical and biological water quality of discharged waters (e.g. COD, BOD, concentration of N and P etc.) should be monitored. In the case of farming facilities which rely on uncontrolled water exchange including enclosures, pens, cages, rafts, ropes, stakes and bags, it would be more appropriate to establish regular monitoring and assessment systems of ambient waters with a specific focus on gross effects on nutrients and their potential impacts on surrounding environments and ecosystems. However, collecting such information may not be practical for many reasons, including the inability to quantify information and the cost.

### 5-2. Feeds and fertilizers

Feed is also a primary requirement to aquaculture. Feed could be natural and in some extensive aquaculture practices there is no supplementary feeding is practiced. Aquaculture feeding practices range from non-fed extensive practices to nutritionally wholesome feeds used for intensive practices. They

range from live feed (Artemia, rotifers, algae, etc.), fresh plant material (grass, macro algae, etc.), simple supplementary feeding material (kitchen waste, various agricultural by-products such as livestock waste, poultry waste, etc.), fresh fish material, farm made feeds, and commercial feeds. Both farm-made feeds and commercial feeds are formulated, using different combinations of ingredients (maize, corn, fishmeal, fish oil, soya bean, etc.), offering a range of compositions of nutrients to satisfy the nutritional requirements of the species under culture.

When a culture practice relies on natural food, either fully or partially, fertilizers may be used to enhance productivity in ponds. Globally a large quantity of fertilizer is used in aquaculture production.

Although the information on the origin and utilization of feeds are extremely important for aquaculture development and planning, particularly in the view of strategic planning of effective utilization and distribution of locally available ingredients, the current level of knowledge is not adequate to establish standard procedure of monitoring of this component. In the interim, further enhancement of the regional and national knowledge of actual practice through occasional surveys, censuses, and case studies would be strongly encouraged.

For statistical data collection and information requirements on feeds and fertilizers, for the purpose of monitoring the sector, considering the complexity of feeds and fertilizers used in aquaculture, the following categorization is considered to be important:

- Farm-made feeds (volume and value)
- Commercial feeds (volume and value)
- Aquatic animals from the wild (volume and value)
- Terrestrial plants
- Terrestrial animals
- Animal and vegetable wastes
- Animal and vegetable sub products and by-products
- Aquatic animals from culture (volume and value)
- Aquatic plants from the wild (volume and value)
- Aquatic plants from culture (volume and value)
- Fertilizers (volume and value)

**5-3. Antibacterials**

As modern intensive aquaculture practices are generally prone to disease outbreaks many farmers opt to use antibacterials as treatments. Inappropriate use of antibacterials often lead to problems related to increased frequency of bacterial resistance as well as not producing any results. Injudicious use of antibacterials has also resulted in the occurrence of their residues in aquaculture products, resulting to commodity bans by importing countries and associated economic impacts, including market loss. Considering the increasing usage of antibacterials in aquaculture, the potential implication of environmental and human health and food safety of irresponsible usage, and the increasing regulatory requirements of controlled antibacterial usage at national levels for international trade in aquatic animal and animal products, monitoring the use of antibacterials is considered important.

As a regulatory procedure, countries are expected to maintain a list of antibacterials banned in using in aquaculture. These are banned for using in aquaculture and should not be sold for aquaculture use and should not be used in aquaculture.

There are antibacterials which are allowed to use in aquaculture under certain conditions. They should be used for a specific purpose under instructions by a registered veterinarian or a person having authority to prescribe.

It is important to monitor the use of antibacterials in aquaculture and the unit for monitoring use should be kilograms or tonnes.\

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## 5-4. Energy

The energy required for aquaculture operations is another important input and will need to be quantified so that the use of energy can be justified relative to other food producing and non-food producing sectors. The data elements for this exercise remain to be developed. However, studies should be initiated to study the energy requirements of various production systems with the hope of identifying more energy efficient methods of fish production. Environmental impacts of energy use will need to be considered.

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## 6. MINIMUM REPORTING REQUIREMENTS FOR NATIONAL STATISTICS ON AQUACULTURE

The following are the minimum data and information essential to monitor aquaculture sector at country level. These should be considered as minimum reporting requirement to ensure consistency and comparability among different national aquaculture statistics and to enable regional and global analysis. Countries should enhance their monitoring capabilities by broadening scope and increasing level of details of data collected according to their own needs.

| Category | Reference | Criteria | Unit |
|---|---|---|---|
| Aquaculture outputs | 3-1-1 | Food products | Quantity in live weight equivalent, and farm-gate value stratified by species, environment, farming system, and destination |
| | 3-1-2 | Non-food products | Quantity of products either in number or product weight, and farm-gate value, stratified by commodity, species, environment, farming system, and destination |
| | 3-1-3 | Seed products | Quantity in number and farm-gate value stratified by species, environment, farming system, and destination |
| | 3-1-3 | Broodstock | Quantity in number and biomass, farm-gate value stratified by species, environment, farming system, and destination |
| Aquaculture inputs | 3-2 | Seed | Quantity in number and value of seeds, stratified by species, numbers and origins. |
| Employment | 4-1 | | Number of people engaged in the aquaculture sector, by gender and classification whether full-time, part-time, or occasional |
| Structure of framing operation | 4-2 | | Number of production units registered and/or licensed, number of hatcheries and number of grow-out facilities, and if possible, number of households involved, stratified by type of facilities and water environments. |

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# 7. DATA COLLECTION AND PLANNING AND IMPLEMENTING SURVEYS

With the rapid growth of aquaculture and its interaction with global markets and economies, there is urgent need to establish data collection system for timely and reliable aquaculture information to support sector management and decision making at international, regional and national levels.

Due to similarity of nature of activities between aquaculture and agriculture, especially for livestock, and close link between them, it would be beneficial to establish aquaculture data collection and monitoring systems in a harmonization with those already established in agriculture. In this section, the general principles applied in agricultural surveys and censuses are presented with minor modifications to accommodate aquaculture needs.

The similarities between aquaculture and agriculture include i) involving the raising of animals in captivity or cultivation of plants; ii) activities locations being bound with specific geographical areas; iii) often sharing the same inputs, such as fertilizers, chemicals, machinery and labour; and iv) two activities often being integrated together, e.g. in rice-cum-fish culture. Utilizing the same set of general concepts, principles and core items to be collected, it would become possible to carry out joint surveys and census which would result in reducing overall cost, enhancing a link and compatibility between aquaculture and agriculture data and enabling more holistic analysis on food security and management and planning of agriculture sector as a whole, including aquaculture, fishery, and forestry.

Statistical needs for aquaculture management, planning and policy-making are very broad. The primary needs are statistics produced on a regular basis, such as production, annual inputs and outputs, and damages through extreme events and diseases, to monitor current conditions and to provide information to help governments and others in short-term decision-making. Such information is usually collected through administrative reporting systems and/or through sample surveys. Periodic survey should cover the minimum data requirement indicated in Section 8.

In addition to periodic surveys, an in-depth survey could also be conducted to further explore the topics, including more information on operational details, water turnover rates, waste water treatment, type and source of feeds as well as fertilizers, biocides and other chemicals, cost of production, and more information on the integration between agriculture and aquaculture, such as sharing inputs and the use of agricultural products as inputs to aquaculture.

On the other hand, censuses have three characteristics i) collecting data on the structure of individual farms including farm size, land use, land tenure, quantities of stocks in holdings; ii) total enumeration where small and subsistent producers would be also covered; iii) less frequency – usually taken every ten years or even less. Census would provide a benchmark for regularly collected data and provide a frame survey information to assist in developing proper sampling and compilation methodologies, specifically in order to produce statistics with less biases and fair representation of small scale producers' contribution.

## 7-1. Global Strategy of Improving Agricultural and Rural Statistics

The Global Strategy of Improving Agricultural and Rural Statistics adopted by UNSC in 2010 provides a conceptual framework of developing integrated data and statistics collection covering whole aspects of agriculture including aquaculture and fisheries under National statistics system.

The following main problems are common to many developing countries:

- limited staff and capacity responsible for collection, compilation, analysis, and dissemination of agricultural statistics;
- lack of adequate technical tools, statistical methodology and survey framework to support data production efforts;
- insufficient funding allocated for agricultural statistics from development partners and national budgets;

- lack of institutional coordination which results in the lack of harmonized and integrated data sources;
- lack of capacity to analyse data in a policy perspective which results in a significant waste of resources as large amounts of raw data are not properly used;
- difficult for data users to access existing data with no metadata and indication of quality.

As the first step, the Strategy determined a set of core data that all countries should collect as shown in table below, where those relevant to aquaculture are marked in the last column.

**Minimum set of core data**

| Group of Variables | Key Variables | Core data items | Frequency | |
|---|---|---|---|---|
| Economic | | | | |
| - Output | Production | Core crops (e.g. wheat, rice, etc.) Core livestock (e.g. cattle, sheep, pigs, etc.), Core forestry products, Core fishery and aquaculture products | Annual | ** |
| | Area harvested and planted | Core crops (ex. wheat, rice, etc.) | Annual | ** |
| | Yield / Productivity | Core crops, core livestock, core forestry, core fishery | Annual | ** |
| - Trade | Exports in quantity and value | Core crops, core livestock, core forestry, core fishery | Annual | ** |
| | imports in quantity and value | Core crops, core livestock, core forestry, core fishery | Annual | ** |
| - Stock of Resources | Land cover and use | Land area (including water area) | | * |
| | Economically active population | Number of people in working age by sex | | * |
| | Livestock | Number of live animals in stock | | ** |
| | Machinery | e.g. Number of Tractors, harvesters, seeders etc. | | * |
| - Inputs | Water | Quantity of water withdrawn | | * |
| | Fertilizers in quantity and value | Core Fertilizers by core crops | | * |
| | Pesticides in quantity and value | Core Pesticides (e.g. fungicides herbicides, insecticides, disinfectants) by core crops | | * |
| | Seeds in quantity and value | by core crops | | ** |
| | Feed in quantity and value | by core crops | | * |
| Agro processing | Volume of core crops/livestock /fishery used in processing food | By industry | | ** |
| | Value of output of processed food | By industry | | ** |
| | Other uses (e.g. biofuels) | | | * |
| Prices | Producer prices | Core crops, core livestock, core forestry, core fishery | | ** |
| | Consumer prices | Core crops, core livestock, core forestry, core fishery | | * |
| Final expenditure | Government expenditure on agriculture and rural development | Public investments, Subsidies, etc. | | ** |
| | Private Investments | Investment in machinery, in research and development, in infrastructure | | * |
| | Household consumption | Consumption of core crops/livestock /etc. in quantity and value | | * |
| Rural Infrastructure (Capital stock) | Irrigation/roads/railways/ communications | Area equipped for Irrigation /roads in km / railways in km /communications | | |
| International transfer | ODA for agriculture and rural development | | | |
| Social | | | | |

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| | | | | |
|---|---|---|---|---|
| Demographics of urban and rural population | Sex | | | |
| | Age in completed years | By sex | | |
| | Country of birth | By sex | | |
| | Highest level of education completed | 1 digit ISCED by sex | | |
| | Labor status | Employed, unemployed, inactive by sex | | |
| | Status in employment | Self Employment and employee by sex | | |
| | Economic sector in employment | ISICs by sex | | ** |
| | Occupation in employment | International Standard Classification of Occupations by sex | | |
| | Total income of the household | | | |
| | Household composition | By sex | | |
| | Number of family/hired workers on the holding | By sex | | |
| | Housing conditions | Type of building, building character, main material, etc. | | |
| Environmental | | | | |
| Land | Soil degradation | Variables will be based on above core items on land cover and use, water use, and other inputs to production. | | |
| Water | Pollution due to agriculture | | | * |
| Air | Emissions due to agriculture | | | |
| Geographic location | | | | |
| GIS coordinates | location of the statistical unit | Parcel, Province, Region, Country | | * |
| Degree of urbanization | Urban/Rural area | | | |

The next step is for each country to establish the set of core items they will include in their national system, add other items relevant to their economy, determine the frequency in which data will be provided, and the scope of the national coverage. Each country should consider how these should be included in the national system. The goal should be to provide annual data for those items that combined account for over three fourths of the country's value of production and coverage of land, productions that can vary significantly from year to year, impact the majority of the households, and have short term impacts on land use and the environment. Then, for each item, it is needed to determine the desired level of detail, and indicate the frequency that data will be provided.

One of the shortcomings of current statistical systems in both developed and developing countries is that data collections across sectors are often done independently using different sampling frames. The results generated from these surveys could not be integrated into a common data base for analyses and access by data users. The Global Strategy proposed in order to overcome this problem to establish master sampling frame by combining individual population with physical land mass, i.e. geo-location and the measure of statistical units. The measure of statistical units could be the farm or agricultural holding, the household, and land parcels. Geo reference would provide a link of the statistical units defined by surveys to the economic, environmental, and social dimensions.

The integration of agriculture into the national statistical system will begin with the development of a master sample frame which will be the foundation for all data collections based on sample surveys or censuses. The master sample frame is to build on the requirements to include both households and farms as statistical units and provides a linkage between the census framework and land use. An integrated survey framework will be established to provide data measured consistently across time and comparable across countries using an annual survey of selected core items and rotating panels covering economic and environmental issues. The concept of a master sample frame will be extended to include a data management system for all official statistics related to agriculture. Population and agricultural censuses, administrative information and registers are key sources of information to establish master sample frame together with satellite imagery. Through this master sample frame, it becomes possible to integrate data collected by individual survey frames. In the case of aquaculture NASO maps would provide a good basis in consolidating information for master sample frame.

At the same time, the master sample frame enables the use of a rich assortment of sample designs including single vs. multiple stage sampling and an integrated survey framework that collect multiple aspects of information within a single sample without compromising statistical representativeness.

**7-2. Coordination with agriculture and population census**

FAO has promoted the decennial World Programme for the Census of Agriculture (WCA) since 1945. Following the recommendation by the Fifteenth Session of the Asia and Pacific Commission on Agricultural Statistics (APCAS), the 2000 round of WCA incorporated "Supplement on aquaculture" in order to collect quantitative structural and other information on the aquaculture sector, specifically for agricultural holdings that also engage in aquaculture activities (Rana, 1997).

The 2010 round of WCA enhanced further the integration of a range of data collection needs especially monitoring and policy making in support of food security and provided options to conduct aquaculture census survey in conjunction with agriculture census. The 2010 WCA has two elements: (i) the agricultural census, which would works as frame survey to be a basis in designing sample survey; and (ii) the sample surveys, including those for aquaculture.

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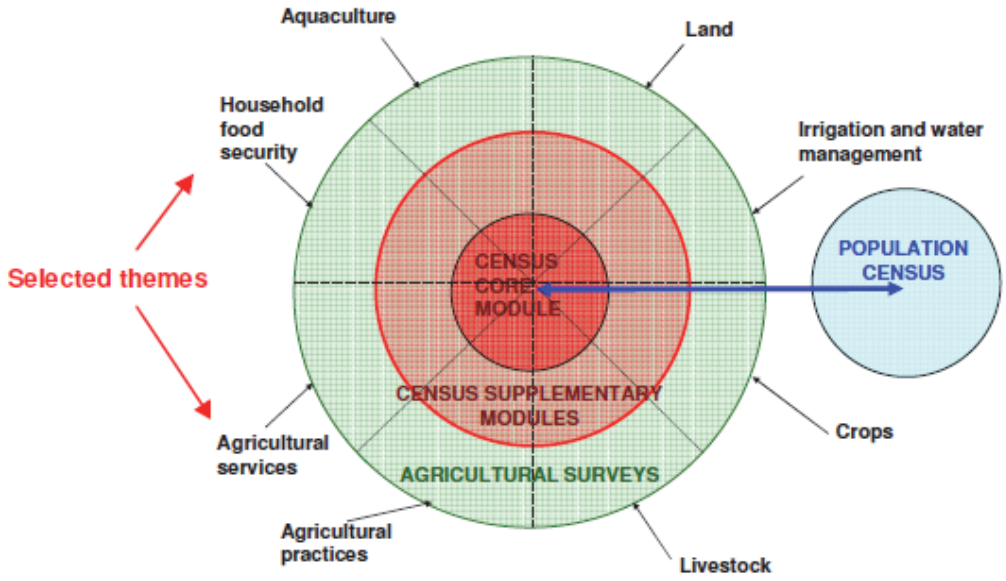
**Figure 7-1 The framework of the 2010 WCA system of integrated agricultural censuses and surveys**




WCA 2010, like the previous programmes, covers only agricultural production units, with aquaculture data limited to activities associated with agriculture. However, for the first time, WCA2010 provides the option to carry out an aquaculture census in conjunction with the census of agriculture, based on the modular approach.

The statistical unit for the aquaculture census is the aquaculture holding, defined in a similar way to an agricultural holding as follows:

> "An aquaculture holding is an economic unit of aquaculture production under single management, comprising all aquaculture facilities without regard to title, legal form, or size. Single management may be exercised by an individual or household, jointly by two or more individuals or households, by a clan or tribe, or by a juridical person such as a corporation, cooperative or government agency. The aquaculture holding's aquaculture facilities are located in one or more separate areas or in one or more territorial or administrative divisions, providing the facilities share the same production means, such as labour, buildings and machinery."

WCA 2010 recommends that aquaculture censuses use the same modular approach as for agricultural censuses, with the core module providing a limited set of key data on the structure of aquaculture holdings and a sample-based supplementary module providing more detailed structural data.

The agricultural census core items relate to basic structural data, such as household size and land use, and these should also be included in the aquaculture census. The use of a common set of core items for the agricultural and aquaculture censuses may make it possible to conduct the core modules of the two censuses using the same questionnaire.

The sample-based supplementary module should include the same aquaculture items as under Theme 10 of the agricultural census. Below presents a broad outline of the methodology for the joint census of agriculture and aquaculture and discusses the implications for the item definitions of combining the two census operations.

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Core module

The frame for the core modules of the census of agriculture and aquaculture can be created in various ways, including i) use of a frame of households from the population census to provide the basis for identifying aquaculture holdings; ii) including additional questions in the population census to identify households engaged in own-account aquaculture production; and iii) use of administrative sources, such as business registrations and aquaculture licensing.

An important element in integrating the agricultural and aquaculture censuses is the use of common items, concepts and definitions for the two censuses. The definition of Item 0007 (area of holding according to land use types) should be modified to include water area, defined as the surface area of the water body. Also, bodies of water should be separately identified under "Other land" in the land use classification. WCA2010 recommends including one additional aquaculture-related item in the core module of the aquaculture. The items for the core module relevant to aquaculture census are as follows:

**Items recommended for the core module relevant to aquaculture**

0001 Identification and location of holding
0002+ Legal status of holder
0003 Sex of holder
0004 Age of holder
0005 Household size
0006 Main purpose of production of the holding
0007 Area of holding according to land use types including water bodies
0008 Total area of holding
0009 Land tenure types on the holding
0010 Presence of irrigation on the holding
0011 Types of temporary crops on the holding
0012 Types of permanent crops on the holding and whether in compact plantations
0013 Number of animals on the holding for each livestock type
0014 Presence of aquaculture on the holding
0015+ Presence of forest and other wooded land on the
0016 Other economic production activities of the holding's enterprise
0017 *AREA OF AQUACULTURE BY TYPE OF SITE (for the holding)*
- Land-based
  - Arable land
  - Non-arable land
- Inland open water
- Coastal and sea water

Supplementary modules

WCA 2010 recommends the following items to be collected specifically for aquaculture holdings. At this moment, the classifications and definitions used here are not exactly the same as those defined in the previous sections. Those discrepancies should be resolved in WCA 2020

**Items for consideration for the supplementary aquaculture module**

Theme 10 – Aquaculture

(Reference group: holdings with aquaculture in Item 0014)

For the holding

*1001 Area of aquaculture according to type of site*
- Land-based
  - Arable land
  - Non-arable land
- Inland open water
- Coastal and marine waters

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Area of aquaculture refers to the area of land under water used for aquaculture. This means the surface area of the pond, paddy field, lagoon, estuary, irrigation canal, or the sea used for aquaculture. The area figure should include supporting structures such as pond banks and floating structures of cages. The area of land-based aquaculture-related facilities such as hatcheries, storage buildings, fish processing facilities, laboratories and offices, should not be included. The area should include land owned by the holding as well as bodies of water rented from others for use for aquaculture purposes. Such bodies of water could include parts of rivers, lakes, reservoirs, dams, canals, lagoons/estuaries, bays/coves, or the open sea. The aquaculture area should refer to the area of the aquaculture facility on the body of water – for example, the total area of the pen or cage network in the water. Some holdings may have very small area of aquaculture.

Land-based aquaculture is aquaculture practised in rice fields, ponds, tanks, raceways and other land areas on the holding. Countries may need to develop procedures to distinguish between land-based and open water aquaculture for some water bodies such as ponds. The split into arable and non-arable land is intended to determine what part of the land-based aquaculture is practised on land that is also used for crop production. Examples of non-arable land are saline-alkaline lands and wetlands.

Inland open water includes dams, reservoirs, lakes and rivers. Coastal and marine waters include lagoons, estuaries, shallow and open seas, bays and coves, including inter-tidal mudflats.

The reference period for data on area of aquaculture is the census reference year.

*1002 Area of aquaculture according to type of production facility*
– Rice-cum-fish culture
– Ponds
– Pens, cages and hapas
– Tanks and raceways
– Floating rafts, lines, ropes, bags and stakes

Rice-cum-fish culture is the use of land for the culture of both rice and aquatic organisms. One form of rice-cum-fish culture is the introduction of brood-stock or seed into flooded paddy fields, often modified for aquacultural purposes. Another form of rice-cum-fish culture is where rice and fish are raised on the same land in different seasons. Fishing associated with fish from the wild that enter paddy fields during flooding is not included.

Pond culture is the breeding or rearing of aquatic plants or animals in natural or artificial enclosures. Pond culture is usually carried out in stagnant waters with periodic water exchange or water flushing through inlets and outlets. Sometimes, large ponds are used in association with cages or hapas. Often there is some integration between crops, livestock and pond culture, as in fish-cum-vegetable culture or fish-cum-animal husbandry.

Pens, cages and hapas are net enclosures used for rearing aquatic animals or plants in lakes, rivers, reservoirs or the open sea. Pens are fixed by frameworks made of metal, plastic, bamboo or wood. Cages are held in place by floating structures. Hapas are simple net enclosures suspended by stakes in the four corners in open water bodies.

Tanks and raceways are fixed structures used for raising aquatic animals or plants. They are normally built above ground and can be made of bricks, concrete or plastic. Tanks are small round or rectangular structures, whereas raceways are long, narrow structures.

Floating rafts, lines, ropes, bags and stakes refer to the aquacultural practice based on these facilities, commonly used for the cultivation of shellfish and seaweed.

The reference period for data on area of aquaculture is the census reference year.

*1003 Type of water*
– Freshwater
– Brackish water
– Saltwater

This item refers to whether aquaculture on the holding was carried out during the reference year using water of the above types. There may be more than one type of water used on a holding. The type of water is usually closely related to the type of site in Item 1001.

Freshwater refers to reservoirs, rivers, lakes and canals, with consistently negligible salinity. Brackish water refers to waters with appreciable salinity but not to a constant high level. It is characterized by fluctuations in salinity due to regular influxes of freshwater and seawater, such as in estuaries, coves, bays and fjords. Enclosed water bodies in which salinity is greater than freshwater but less than seawater are also regarded as brackish. Saltwater (or marine water) refers to coastal and offshore waters where salinity is high and is not subject to significant daily or seasonal variation.

*1004 Sources of water for aquaculture*
– Rain-fed
– Groundwater
– Rivers/canals
– Lakes/reservoirs
– Dams
– Estuaries/lagoons
– Coves/bays/sea

This item refers to whether water for aquaculture production on the holding during the census reference year was obtained from the above sources. There may be more than one source of water used for aquaculture on a holding. The source of water is usually closely related to the type of site in Item 1001. Countries may wish to adapt these categories to suit local conditions.

*1005 Type of aquacultural organism cultivated*
– Freshwater fish
– Diadromous fish
– Marine fish
– Crustaceans
– Molluscs
– Other aquatic animals
– Aquatic plants

This item refers to which of the above types of aquatic organisms were cultivated on the holding during the census reference year. More than one type of organism may be cultivated on a holding. The classification refers to the type of aquatic animal or plant cultivated, not the type of aquaculture product generated. Thus, pearl production is shown under “Molluscs”.

The main types of freshwater fish are carps and tilapias. Diadromous fish are fish that can live in both fresh and seawater, such as trout, salmon, eels and sturgeon. Marine fish include flounder, cod and tuna. Crustaceans are aquatic animals with hard shells, such as crabs, lobsters and shrimps. Molluscs are animals belonging to the phylum Mollusca, including abalones, oysters, mussels, scallops, clams and squids. Other aquatic animals include frogs, crocodiles, alligators, turtles, sea-squirts and sea urchins. Aquatic plants include seaweed and lotus.

**7-3. Use of spatial information technology**

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The Spatial Information Technology is now well developed and provides powerful tool in aquaculture statistics and data collection with relatively low cost compared to field surveys through:

- Mapping of farming facilities,
- Measurement of number and size of farming systems,
- Monitoring of farming activities over time such as land use change, crop cycle monitoring e.g. stages in shrimp ponds, and abandoned or active ponds identification of coastal shrimp ponds, and
- Estimating and/or predicting production through analyses and modelling of GIS data.

The recent technology allows for mapping even individual aerators in pond by water circulation, indicating that pond is in use. The technology is especially effective for data collection in the area where the farming facilities are scattered and/or those hard to access.

Spatial information obtained through the technology provides full enumeration of the area of target and can be used as a master sample frame. Use of mobile GIS at the sample survey on ground survey, e.g. collecting socio-economic data, greatly enhances the utility, accuracy and cost efficiency of statistical data collection. Even that high spatial resolution imagery is still expensive and the methodology is based on spatial information technology can be practical and realistic and is in fact already operational in some countries.

Currently, major limitation is availability of resources with appropriate skill, i.e. those have the background on the technology, aquaculture and statisticians, to maximize the use of technology.

An attempt should be made to harness the available resources and bring about higher efficacies to the data gathering which include the agricultural developments. This will lead to a more holistic, integrated and a much needed statistics gathering that the Global Strategy to Improve Agriculture Statistics is pursuing for.

All applications relevant to aquaculture using GIS, Remote Sensing and GPS are available at www.fao.org/fishery/gisfish/index.jsp

**7-4. Administrative data**

Currently, some countries require registration and/or licensing of all aquaculture holdings with required provision of a broad range of data including ownership, location of farming facilities, type and size of farming systems in operation, water access, etc. This provides data to monitor an operational structure of the sector. Such administrative data can also be used to design sampling scheme on operational aspects including water use and other inputs/outputs information.

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## 8. COMMON CONCEPTS AND CODES TO BE USED

*Below is a text extracted from the current draft of overall handbook. Please comments on necessary amendment, revision and/or missing component, to fulfil the need for aquaculture monitoring. If necessary, it is also possible to set separate section especially for aquaculture.*

### 8-1. Country

All countries or areas have official and formal designations. These are often very long and not suitable for use in statistical databases and publications, particularly in tabulations and graphs. These designations are therefore often simplified. For example:

**United Kingdom** (or UK) refers to The United Kingdom of Great Britain and Northern Ireland.
**Comoros** refers to The Islamic Federal Republic of the Comoros.

The designations employed and the presentation of material in publications are used simply for practical reasons, and are usually accompanied by a note that they do not imply the expression of any opinion whatsoever on the part of the publishing agency concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Certain other terms used in statistical publications (for example, "developed" and "developing" economies) are based on standard UN definitions in this respect, and frequently bear relationship to the stage of economic development, and no relationship to the level of catch of the country concerned. The same applies to the now widely-used term "low-income food-deficit country" - LIFDC. The LIFDC classification is established by the World Bank as low-income in terms of Gross National Product (GNP) per caput, and by FAO as having a trade deficit for food in terms of calorie content.

In many tables, country or area entities are identified by alpha (or alphabetic) and/or numeric codes and this practice is frequently used in multilingual tables where the use of formal names, or even their common abbreviations is impossible because of space considerations. Such alpha and numeric codes have been developed by the UN Statistical Office, FAO, ILO, EU, ISO, etc. In the two annexes to this section are to be found lists of the more commonly used codes in fishery statistics.

The two annexes include:

a) FAO multilingual country or area code (maximum 12 characters) used for fishery statistical purposes.
b) ISO 3-alpha country or area code (International Organization for Standardization).
c) ISO 2-alpha country or area code (International Organization for Standardization). ISO codes relate to geographical entities (See reference below).
d) UN 3-digit country or area code (See reference below).
e) Country or area names in English (maximum 24 characters)
f) Country or area names in French (maximum 24 characters).
g) Country or area names in Spanish (maximum 24 characters).

Some countries or areas are further presented under territorial or other components used in fishery statistics, for example:

1- Continents
2- Economic class
3- Regions and sub-regions

Annex IVa: List of countries or area by multi-lingual name
Annex IVb: List of countries or area by ISO 2-alpha code

### 8-2. Currencies and funds

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The International Organization for Standardization (ISO), recognising that the need for a universally applicable code for the identification of currencies and funds had become increasingly urgent, has developed international standard codes for the representation of currencies and funds (ISO 4217). These codes are related to those developed by the ISO for geographical entities (ISO 3166).

*- recommend to keep local currency records,*
*- maybe better to incorporate into main text*

In the following two annexes are to be found lists of currencies and funds by:
Annex VIa: List of Currencies sorted by Country or Area Multi-lingual Name
Annex VIb: :List of Currencies sorted by currency code and country or area multi-lingual name.

**8-3. FAO Major Areas for statistical purpose**

For statistical purposes, 27 major areas have been internationally established to date. These comprise:

- eight major inland areas covering the inland waters of the continents,
- nineteen major marine areas covering the waters of the Atlantic, Indian, Pacific and Southern Oceans, with their adjacent seas.

The major areas, inland and marine, are identified by their names and by two-digit codes.

| INLAND | | MARINE | |
|---|---|---|---|
| 01 | Africa - inland waters | 18 | Arctic Sea |
| 02 | North America - inland waters | 21 | Northwest Atlantic |
| 03 | South America - inland waters | 27 | Northeast Atlantic |
| 04 | Asia - inland waters | 31 | Western Central Atlantic |
| 05 | Europe - inland waters | 34 | Eastern Central Atlantic |
| 06 | Oceania - inland waters | 37 | Mediterranean and Black Sea |
| 07 | Former USSR area - inland waters * | 41 | Southwest Atlantic |
| | | 47 | Southeast Atlantic |
| | | 48 | Atlantic, Antarctic |
| | | 51 | Western Indian Ocean |
| | | 57 | Eastern Indian Ocean |
| | | 58 | Indian Ocean, Antarctic and Southern |
| | | 61 | Northwest Pacific |
| | | 67 | Northeast Pacific |
| | | 71 | Western Central Pacific |
| | | 77 | Eastern Central Pacific |
| | | 81 | Southwest Pacific |
| | | 87 | Southeast Pacific |
| | | 88 | Pacific, Antarctic |

* The area 07 ("Former USSR area - Inland waters") referred to the area that was formerly the Union of Soviet Socialist Republics. Starting with the data for 1988, information for each new independent Republic is shown separately. The new independent Republics are: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan (statistics are assigned to the fishing area "Asia - Inland waters") and Belarus, Estonia, Latvia, Lithuania, Republic of Moldova, Russian Federation, Ukraine (statistics are assigned to the fishing area "Europe - Inland waters").

Annex VIIIa is the world chart showing the current FAO Major Fishing Areas

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**8-4. Identifiers for aquatic animals and plants**

As part of the ASFIS[3] Reference Series FAO has produced a "List of Species for Fishery Statistical Purposes". The complete list is downloadable from the FAO website at: ASFIS List of Species for Fishery Statistics Purposes.

This list currently comprises 10,685 species items selected according to their interest or relation to fisheries and aquaculture. As far as has been possible from statistical reports, the species items have been included down to the level of the species. However, frequently statistical reports only identify to a taxonomic position higher than the species (e.g. genus, family, order). Such items have been included in the ASFIS list. No sub-species as included in the ASFIS list.

The species of importance to fisheries and aquaculture have been mainly selected consulting the FAO Species Identification and Data Programme (SIDP) publications such as species catalogues, identification sheets and field guides. FishBase (1998) has been the main source of information on newly included fish species. For fishes, the Eschmeyer's higher classification (1998) was adopted (as in FishBase). For crustaceans the classification by Bowman and Abele (1982) was adopted and for algae that of Luning, Yarish and Kirkman (1990).

For each item the following information is recorded: For the other groups more than one source has been consulted for the higher classification. A short list of the main references used in compiling the ASFIS list of species is provided in the Bibliographical references (see below).

***ISSCAAP code for species grouping***. This code is assigned according to the FAO "International Standard Statistical Classification for Aquatic Animals and Plants" (ISSCAAP) which divides commercial species into 9 divisions and 50 groups based on their taxonomic, ecological and economic characteristics.

At the 19th Session of the Coordinating Working Party of Fishery Statistics - CWP (Nouméa, New Caledonia, 10-13 July 2001), FAO-FIES presented a proposal to revise the names and composition of ISSCAAP fish groups 33, 34 and 37 with the aim of providing the users with a new useful grouping of coastal fishes and better identification of demersal and pelagic species.

The proposal was endorsed by CWP and implemented in the FAO Yearbook of Fishery Statistics starting with volumes 90/1(2001) and 90/2 (2001).

In the new classification the species items of the former group 33 "Redfishes, basses, congers" were classified as either coastal or demersal fishes and accordingly assigned to the new groups 33 "Miscellaneous coastal fishes" and 34 "Miscellaneous demersal fishes". The pelagic species, formerly included in Group 34 "Jacks, mullets, sauries", were moved to group 37, which was renamed "Miscellaneous pelagic fishes".

***Taxonomic code.*** The taxonomic code is used by FAO for a more detailed classification of the species items and for sorting them out within each ISSCAAP group. The code consists of 10 digits followed in some cases by an additional three digits.

***3-alpha identifier*** is a unique code composed of 3 letters developed by the CWP for the exchange of data between international agencies and with national correspondents. The identifier is also widely used in statistical publications where the use of the full species descriptor would be prohibitive and it is increasingly used in fisheries administration documents (e.g. fishing log-books). The wider use of the indicators is encouraged provided it does not affect the integrity of the system.

The 3-alpha identifiers are managed by FAO to whom all applications for new identifiers should be addressed. An essential feature of the identifier is that once it has been assigned it may not be

[3] Aquatic Sciences and Fisheries Information System.

reassigned to another item even if the species item to which it originally referred is removed from the ASFIS list of species.

***Scientific name.***

Recent taxonomic revisions have been consulted to use the correct scientific names and taxonomic classification. This allowed the identification of some scientific names and taxonomic codes that were no longer correct. However, this list obviously has no authority on taxonomic matters and to resolve uncertain cases specialized sources should be consulted.

A pragmatic and conservative approach has been applied for uncertain cases for scientific and FAO names. Changes of scientific names and creation of new species proposed in the scientific literature by taxonomists will be included in the ASFIS list only when such changes have been recognized by the majority of taxonomists and are well consolidated among people dealing with fishery matters and, in particular, fishery statistics. For the most controversial cases, the ASFA database has been consulted to verify if a newly proposed scientific name has become of current use.

***FAO English name.***

These are the names that have been assigned to the species items by FAO as being considered to be appropriate to those species items. They are unique to that item. Member agencies of the CWP have agreed to use these standard species names in statistical publications and questionnaires.

These names may not correspond with nationally or regionally-used common names.

Where the species item refers to a single species the name is in the singular.

Where two or more species are present, the name is in the plural form.

It has been possible to assign representative English names to only 78% of the species items in the ASFIS list.

***FAO French names.***

The above remarks concerning the FAO English names applies to the FAO French names though only 40% of the items have been allocated appropriate names.

***FAO Spanish nam*s**

The above remarks concerning the FAO English names applies to the FAO Spanish names though only 36% of the species items have been allocated appropriate names.

***Family***

The taxonomic family to which the species item is assigned.

***Orde*r**

The taxonomic order to which the species item is assigned.

**8-5. Fishery Commodities Classification**

Fish, as a highly perishable commodity, often undergoes treatments which prolong its shelf life and quality as food. Fish is also a very widely traded commodity. When considering statistical aspects related to fish and fish products in the fishery industry as a whole, one is faced with a wide variety of raw fishery materials, semi-processed and fully-processed commodities, crossing all the various fishery phases. The physical magnitude and value of the intake and output of the different kinds of fishery commodities can be measured in specified periods of time - days, weeks, seasons, years, etc. Statistics covering any of the above phases must be dovetailed, linked or integrated and the first indispensable step is an adequate fishery commodity classification. The classification can be used as statistical standard for more than one statistical system, e.g. the trade system, industrial censuses, censuses of commercial and service establishments, wholesale and retail price systems, etc.

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The FAO International Standard Statistical Classification of Fishery Commodities (ISSCFC) has been developed for the collation of national data in its fishery commodities production and trade databases. The ISSCFC is an expansion of the United Nations Standard International Trade Classification, Revision 3 (SITC Rev.3) developed by the United Nations' Statistical Office on the basis of earlier international work on the subject. It is linked with the Harmonized Commodity Description and Coding System (abbreviated to HS) of the World Customs Organization. The ISSCFC covers products derived from fish, crustaceans, molluscs and other aquatic animals, plants and residues caught for commercial, industrial or subsistence uses, by all types of fishing units operating in all aquatic environments, in inshore, offshore or high seas fishing. Commodities produced from the raw materials supplied by all kinds of aquaculture are also included.

The currently used classification is presented in Annex XXIb

**8-6. Definition of land-use and water-use**

Land use reflects both (i) the activities undertaken and (ii) the institutional arrangements put in place; for a given area for the purposes of economic production, or the maintenance and restoration of environmental functions. In effect, an area that is "used" implies the existence of some human intervention or management. Land in use therefore includes areas, for example protected areas that are under the active management for the purpose of excluding human activity from that area.

The SEEA land use classification is shown in Table 8-1. At its highest level, it is classified into the primary types of surfaces: land, inland waters, coastal waters, and the Exclusive Economic Zone (EEZ).

Table 8-1 Land Use Classification

| | |
|---|---|
| LAND | |
| | Agriculture |
| | Forestry |
| | **Land used for aquaculture** |
| | Use of built up and related areas |
| | Land used for maintenance and restoration of environmental functions n.e.c. |
| | Other uses of land n.e.c. |
| | Land not in use |
| INLAND WATERS | |
| | **Inland waters used for aquaculture or holding facilities** |
| | Inland waters used for maintenance and restoration of environmental functions n.e.c. |
| | Other uses of inland waters n.e.c. |
| | Inland waters not in use |
| COASTAL WATERS | |
| | **Coastal waters used for aquaculture or holding facilities** |
| | Coastal waters used for maintenance and restoration of environmental functions n.e.c. |
| | Other uses of coastal waters n.e.c. |
| | Coastal waters not in use |
| EXCLUSIVE ECONOMIC ZONE | |
| | **EEZ areas used for aquaculture or holding facilities** |
| | EEZ areas used for maintenance and restoration of environmental functions n.e.c. |
| | Other uses of EEZ areas n.e.c. |
| | EEZ areas not in use |

**APPENDIX 11**

| Category | Definition |
|---|---|
| Country area | The total of areas under "Land area" and "Inland water," excluding offshore territorial waters. |
| Land area | The total of areas under "Agricultural area," "Forest or other wooded land," "Land with aquaculture facilities" and "Other land." |
| Land with aquaculture facilities | Land used for aquaculture facilities including supporting facilities. Aquaculture refers to the farming of aquatic organisms: fish, molluscs, crustaceans, aquatic plants, crocodiles, alligators, turtles, and amphibians. Farming implying some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Aquaculture facilities include ponds and tanks (artificial units of varying sizes constructed above or below ground level capable of holding and interchanging waters), raceways and silos (artificial units constructed above or below ground level capable of high rate of water interchange in excess of 20 changes per day) and hatcheries (housing facilities for breeding, nursing and rearing seed of fish, invertebrates or aquatic plants to fry, fingerlings or juvenile stages). |
| Other land | Land not classified as "Agricultural land", "Forest area and other wooded land," and "Land with aquaculture facilities", including land occupied by buildings, parks and ornamental gardens, built-up areas, roads or lanes, open spaces needed for storing equipment and products, barren land, wasteland, land under permanent ice, and any other land not reported under previous classes. |
| Inland water areas | Area occupied by lakes, reservoirs, rivers, brooks, streams, ponds, inland canals, dams, and other land-locked (usually freshwater) waters (such as the Caspian Sea, Aral Sea, etc.).. |
| Marine water areas | Oceans and seas including adjacent saltwater areas including internal waters, within national exclusive economic zone. Internal waters is considered as those waters of the sea on the landward side of the baseline used by the national authorities of the coastal country to measure further seawards the width of the territorial sea and any adjacent marine waters, whether salt, brackish, or fresh in character, following the Article 8 of the Informal Composite Negotiating Text/Revision 2 (A/CONF.62/WP.10/Rev.2, 11 April 1980) of the United Nations Third Conference on the Law of the Sea. |
| Areas with aquaculture or holding facilities | Water surface areas above, on or below which are used for aquaculture facilities including supporting facilities. Surrounding areas that is required to keep for exclusive use of aquaculture by regulations and/or other requirement should be also included. Aquaculture refers to the farming of aquatic organisms: fish, molluscs, crustaceans, aquatic plants, crocodiles, alligators, turtles, and amphibians. Aquaculture facilities include enclosures and pens (water areas confined by net, mesh and other barriers allowing uncontrolled water interchange), cages (open or covered enclosed structure constructed with net, mesh or any porous materials allowing natural water interchange), barrages (semi-permanent or seasonal enclosures formed by impervious man-made barriers and appropriate natural features), and rafts, ropes, stakes (raft, long lines or stakes used to culture shellfish and seaweeds). |
| Areas used for maintenance and restoration of environmental functions n.e.c. | Areas with enhancement including stocking, fertilization, engineering, predator control, habitat modifications, and/or access limits, including Protected Area. |

Information on land use and water use in relation to aquaculture sector can be collected through administrative information including registers of aquaculture holdings, the agriculture census and aquaculture census, satellite imageries, and combination of those.

**APPENDIX 11**

## 9. BIBLIOGRAPHY

**De Silva, S. S., Nguyen, T. T. T. and Ingram, B. I**. 2008. Fish reproduction in relation to aquaculture, in *Fish reproduction*, Science Publishers, Enfield, N.H., pp.535-575.

**FAO.** 1995. *Code of Conduct for Responsible Fisheries*. Rome, FAO. 41p.

**FAO.** 1999. Data for mariculture, aquaculture and other kinds of fish farming were previously presented in the Series "FAO Fisheries Circular" No. 815 up to revision No. 11.

**FAO**. 2005. *Towards improving global information on aquaculture*. FAO Fisheries Technical Paper. No. 480. Rome. 172p. Also available at www.fao.org/docrep/008/a0066e/a0066e00.htm

**Rana, K. J.** 1997. *Guidelines on the collection of structural aquaculture statistics*. FAO Statistical Development Series 5b, Rome.

**Lovatelli. A. and Holthus, P.E**. (eds.). (2008): Capture-based aquaculture: Global review. FAO Fisheries Technical Paper. No. 508. Rome, FAO. 2008. 298. p.

**Kapetsky, J.M.; Aguilar-Manjarrez, J.; Soto, D. & White, P**. 2010. Status and potential of spatial planning tools, decision-making and modelling in implementing the ecosystem approach to aquaculture. In. Aguilar-Manjarrez, J.; Kapetsky, J.M. & Soto, D. 2010. *The potential of spatial planning tools to support the ecosystem approach to aquaculture*. FAO/Rome. Expert Workshop. 19–21 November 2008, Rome, Italy. FAO Fisheries and Aquaculture Proceedings. No.17. Rome, FAO.

**World Bank.** 2010. *Global Strategy to Improve Agricultural and Rural Statistics*. Rep. Num. 56719-GLB

**This document contains the report of the twenty-fourth session of the Coordinating Working Party on Fishery Statistics (CWP) held in Rome, Italy, from 5 to 8 February 2013. This was the first session after the Aquaculture and Fishery subject Groups were formally established. Two subject Groups had their own meetings to review the progress made and develop work plan for the next intersessional period prior to the main session. The main session received the report from the two Groups and approved the work plans presented. Other main topics discussed were the revision of International Statistical Standard Classifications of Fishing Gears (ISSCFG), the revision and future dissemination of the CWP Handbook, the review of status of "Rules of Procedure" and the improvement in visibility of CWP.**

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