

**COORDINATING WORKING PARTY ON FISHERY STATISTICS**

**Twenty-third Session**

**Hobart, AUSTRALIA 22-26 February 2010**

**Report by FAO**

### **Overview**

As a part of FAO reform process, the former “Fisheries and Aquaculture Information and Statistics Service” (FIES) of FAO Fisheries and Aquaculture Department has changed into “Fisheries and Aquaculture Statistics and Information Service (FIPS)” under Fisheries and Aquaculture Policy and Economics Division of FAO Fisheries and Aquaculture Department starting from 1 January 2010. E-mail addresses for statistics provision and external statistical and information inquiries were changed to [Fish-Statistics-eForms@fao.org](mailto:Fish-Statistics-eForms@fao.org) and [Fish-Statistics-Inquiries@fao.org](mailto:Fish-Statistics-Inquiries@fao.org), respectively.

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

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 - [Fish-Statistics-Inquiries@fao.org](mailto:Fish-Statistics-Inquiries@fao.org) - on a daily basis.

In 2008, China revised its 2006 production statistics to reduce about 13 percent based on its Second National Agriculture Census conducted in 2007. This implied the downward adjustment of global statistics by about 2 percent in capture production and 8 percent in aquaculture production. Historical statistics of China for the period 1997-2006 were subsequently revised by FAO with the revision process known and acknowledged by the Chinese authorities.

Support to capacity-building for fishery statistics is mainly provided through FishCode-STF Programme which was launched in November 2004 under the FishCode.

### ***Capture production statistics including regional databases:***

The FAO global database on capture fisheries production has been updated annually with 2006, 2007 and 2008 data (closed the third week of February 2010). Number of species items included in the database has grown from 1,581 in 2005 to about 1,770 in 2008 (+ 12 percent).

### **Elasmobranch statistics**

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Elasmobranch is one of the species groups in which the number of species items included in the FAO database has increased more in recent years thanks to initiatives taken by FAO and other CWP members to raising awareness of the importance of detailed shark statistics. FAO held the Technical Workshop on the “Status, limitations and opportunities for improving the monitoring of shark fisheries and trade” in Rome, Italy, 3-6 November 2008 to review the status of information on shark fisheries and trade and to identify the limitation and strategy for improving their monitoring<sup>1</sup>. The workshop recommended actions to promote the implementation of National Plans of Actions for Sharks and to address specific problems including lack of specificity in data, underestimated catch volumes, and limitations in the custom codes used in trade monitoring.

### **Regional capture databases compiled by FAO**

The three regional capture databases for CECAF (Eastern Central Atlantic), RECOFI (part of Western Indian Ocean), and for the Southeast Atlantic fishing area have continued to be updated regularly. Their update to 2008 data is expected to be completed within the spring 2010.

In May 2007, FAO and GFCM agreed that the responsibility for the compilation of the “GFCM capture production database” would have been handed over to the GFCM Secretariat starting with the update of 2006 data. With the two years’ of collaborative efforts, the transfer of the task was successfully completed in 2009.

The CWP-22 had suggested FAO and SEAFO to conduct a joint study to analyze if it is feasible to rearrange the statistical divisions of the FAO Fishing Area “47 - Southeast Atlantic” regional database in a way that would both reduce to a minimum the disruption of historical data series and allow the reporting and compilation of data also according to the SEAFO divisions. A joint proposal (attached as Appendix 1) was presented at the First Annual Meeting of SEAFO Sub-Committee of the Scientific Committee, Swakopmund, Namibia, 1-3 October 2007, and was endorsed by the following SEAFO Scientific Committee and SEAFO Commission<sup>2</sup>. This revision of statistical divisions aims at obtaining clear separation of data between catches taken inside and outside Economic Exclusive Zones (EEZs) of coastal states. During the last two years, FAO and SEAFO have been collaborating in setting up the new statistical framework and exchanging the information received.

### **Evaluation, comparison and common framework for data by other CWP Members**

Before finalizing FAO data for dissemination, FIPS examines all data reported by comparing with supplementary data as well as with those available in the databases of other fishery organizations. This exercise has actually reduced the discrepancies between the FAO and other databases in recent years. FIPS has maintained good communication and collaboration with other CWP Members and commits to continue the same efforts.

Catch data in the FAO database for the Southern Ocean fishing areas are fully derived from those compiled by CCAMLR. The International Whaling Commission (IWC) is the provider of the great majority of whale data included in the FAO database, whereas FAO always forwards to IWC data on whales received by national correspondent that may be of interest to IWC.

Tuna catch data maintained by IATTC, ICCAT, IOTC, and WCPFC are used to supplement, evaluate, and adjust to improve a reliability of the tuna catch data received directly by national correspondents.

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<sup>1</sup> FAO Fisheries and Aquaculture Report No. 897 available at: <http://www.fao.org/docrep/012/i1121e/i1121e.pdf>

<sup>2</sup> Report of SEAFO Scientific Committee 2007 available at: <http://www.seafo.org/Scientific%20Committee/reports/SC%20Report%202007.pdf>

Collaboration with NAFO and ICES-Eurostat has continued for both data exchange and solving of major discrepancies. In April 2008, the NAFO IT Manager spent one week in FAO and tried to discrepancies between the databases of the two organizations, among other issues. After a thorough comparison of the data, it was concluded that: a) major discrepancies are due to differences in reporting offices (e.g. Canada and USA), timing in reporting, and questionnaires used; b) discrepancies arise mostly with the STATLANT 21B data; and c) despite these differences, discrepancies between the NAFO and FAO databases for the overall catches since 1960 amount only to 2.2% of the total.

FAO informed colleagues managing the ICES-Eurostat database that comparison with the data held in the FAO capture database for the Northeast Atlantic fishing area showed that the ICES-Eurostat database includes a significant higher number of species items (2007 data). Lesser species items in the FAO database is in some cases explained by the fact that as the data in the FAO database are not used for management purposes, sometimes data for species/genus are aggregated to ensure continuity of the data series. On the other hand, FAO identified about 50 species items in the ICES-Eurostat database which is considered to be misreported by code, as the distribution range of those species does not include the Northeast Atlantic. For 2009, Eurostat, ICES and FAO agreed to share the raw data reports received from countries to identify exactly when and where discrepancies would be introduced. The finding from this exercise would be utilized to develop the action plans to harmonize the national catch reportings in the North Atlantic Area.

SEAFDEC in close collaboration with FAO for several years finally set up the new framework for fishery statistics in Southeast Asia and the terms of the collaboration with FAO, as the results of the "Regional Workshop on Streamlined Reporting of Fishery Statistics in Southeast Asia" organized by the SEAFDEC in Bangkok, Thailand, 28-31 July 2008. A new common FAO-SEAFDEC questionnaire to report capture data was established, similar to the STATLANT questionnaires which FAO manages in collaboration with the regional bodies in the Atlantic Ocean. For, FAO will share with SEAFDEC the aquaculture and fishers data the data received from SEAFDEC member countries. SEAFDEC will request its member countries to submit data with eight additional questionnaires. The collaboration started with the 2008 statistical inquiry and FAO and SEAFDEC have been efficiently sharing the data received from the national correspondents.

Relationships in relation to fishery statistics have been established with the South Pacific Regional Fisheries Management Organisation (SPRFMO) and it is planned that in the second half of 2010 FAO and SPRFMO will compare data held in their respective capture databases to identify discrepancies and missing data.

### **ASFIS list of species**

The ASFIS list of species was created in 2000 to: a) revise and update the taxonomic classification of the species items represented in the FAO statistics; b) streamline the inclusion of new species, for which statistics were reported, in the FAO databases; c) provide fishery commissions and national institutions with a common coding system for species related to fishery activities.

The ASFIS list is continuously updated and new records are assigned for newly reported species or according to requests by CWP Members. In its last update (March 2009), the ASFIS list included 10,850 species items, an increase of 200 records in comparison to the 2006 release. CCAMLR has recently requested the provision of new codes and validation of the nomenclature for a number of species items related to Vulnerable Marine Ecosystems (VMEs). Codification of sea birds was revised and expanded, and both ICCAT and IOTC requested sea birds' ASFIS codes to be used for their records. The next release of the ASFIS list is planned for the end of March 2010 and the updated list will be made available promptly at <<http://www.fao.org/fi/statist/fisoft/asfis/asfis.asp>> and the users informed through an e-mail message.

### **Classification of deep-water species included in the FAO capture database**

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Following the criteria established in the FAO Technical Paper no. 435 (2003) to classify species as “deep-water” according to their biological characteristics, the list of deep-water species items with catch statistics in the FAO database has been updated several times. The number of deep-water species included in the FAO database has more than double in the 1999-2006 period, reaching 133 species items in 2006 data. However, it should be noted that the increase in number of species probably reflects improved reporting of deep-water catches rather than greater fishing activities in deep waters.

Data for deep-water species extracted from the FAO capture database have provided useful side information to the meetings and publications related to the preparation of the “International Guidelines for the Management of Deep-sea Fisheries in the High Seas”, and have been analyzed in various issues of the FAO “The State of World Fisheries and Aquaculture (SOFIA)” and in other studies.

### ***Aquaculture production:***

#### **Strategy for Improving Status and Trends Reporting for Aquaculture**

The Strategy and Outline Plan for Improving Information on Status and Trend of Aquaculture (Strategy-STA) was developed by the Expert Consultation on Status and Trends Reporting for Aquaculture in 2004 and endorsed by the Third Sub-Committee of Aquaculture (New-Delhi, 2006) and by the twenty-seventh session of the FAO Committee on Fisheries (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. It calls on international and national efforts to assist with its implementation. The Strategy categorized actions to be undertaken into the following three groups:

- Improving institutional mechanisms and procedures for statistics and trend and status reporting
- Global methodologies and standards, and
- Capacity building in developing countries.

Following the strategy as well as based on the decision taken by CWP-22, FAO organized the expert workshop to discuss on the appropriate structure of CWP-like mechanism for aquaculture (CWP-AS) in Nakorn Nayok Thailand, 8-10 January 2008. The workshop reaffirmed the need of such mechanism to identify, establish and harmonize standards for aquaculture data, information and statistics and recommended to establish such mechanism within the framework of the existing CWP-FS, but with its own Terms of Reference (TOR), rules of procedure and composition to reflect the specific needs of the aquaculture sector. Draft TOR and a detailed proposal of functions and structure of such a body were developed. This recommendation was reviewed at the CWP Intersessional meeting held in Dartmouth, Canada, during 8-9 July, 2008 which informally agreed to establish two specialized groups, one for aquaculture and one for capture fisheries, under the CWP. Among the existing CWP members, Eurostat, FAO, NACA, OECD, SEAFDEC, and SPC expressed their interests to join the group.

The first Regional workshop under the Strategy-STA framework was held in Ha Long City, Vietnam, during 16 and 18 November, 2009, in order to identify the capacity building need in the Asia for the implementation of Strategy-STA. The meeting was co-hosted by FAO, NACA, SEAFDEC and MARD of Viet Nam with the support of the Japanese Trust Fund. The meeting recommended to develop i) a Region web-site that may deposit and share information relating to aquaculture data collection, training manuals, experiences, standards, information collected by countries but not disseminated through FAO and ii) simple manual for aquaculture data collection. The meeting also agreed to encourage national effort to i) improve inter-regional and regional collaboration in relation to skill development in data collection and reporting, ii) review and enhance capacity and skills at all levels and on a regular basis, and iii) conduct regular consultation between data collectors, enumerators, statisticians, and users within the country as well as among countries. Draft report of the meeting is available as **CWP-23/Inf.2**.

## **Development of draft Handbook**

The ad-hoc Aquaculture Group of the Coordinating Working Party on Fisheries Statistics (CWP) which initiated its activity based on the decision taken at the CWP Intersessional meeting held in Dartmouth, Canada, during 8-9 July, 2008 put the establishment of global standard of terms, concepts, and methodology as the most urgent priority task of the Group. Then, it agreed to revise the aquaculture component of the existing CWP Handbook.

NACA and FAO developed a preliminary draft collaboratively and the Expert Workshop held in Halong City, Vietnam, during 10- 13 November 2009 further developed and finalized the draft. The workshop was participated by eight representatives from five CWP participating organizations (FAO, NACA, SEAFDEC, SPC and EuroStat) and eleven selected experts. The draft Handbook tried to cover the concepts and items that are needed or would become necessary in near future for management of aquaculture sector. Also, the meeting developed a minimum set of national statistics requirement. The meeting conducted the final round of review on the assembled text and agreed its content with the understandings that further clearance of English and consistency in terminologies would be applied by the CWP Secretariat. The agreed final draft is available as **CWP-23/3**.

## **Census activities**

FAO Fisheries has collaborated with the FAO Statistics Division on the World Programme for the Census of Agriculture 2010<sup>3</sup>. The programme includes options and guidance for different levels of inclusion of aquaculture and inland fisheries data collection, depending on the national importance of these sectors and the national priorities and resources. This inclusion can range from a single question to determine the presence of aquaculture in the agriculture holding (as the basis for future surveys), to the conduct of a full “agri-aqua” census where all aquaculture holdings would be enumerated, including those not within agricultural holdings. FAO FIPS attended the meetings on Agriculture Statistics as well as preparatory meeting for the 2010 Agriculture Census to facilitate a discussion among members regarding the inclusion of fisheries and aquaculture data collections in their planned national census activities.

## ***Production and trade of fishery commodities:***

The FAO International Standard Statistical Classification of Fishery Commodities classification (ISSCFC) has continued to be regularly revised and expanded in light of changes in patterns of international trade and national classifications. It now contains about 1 020 items containing data, with an increase of about 120 items during the last two years.

FAO FIPS has recently started to work on expanding the yearly coverage of the fishery commodities production and trade database from the present 1976-onwards to 1950. Data for the years 1950-1975 are being collected through careful retrieval, analyses and estimation based on historical yearbooks and questionnaires as well as on other available records and information. Plans are to accomplish this task and release an expanded version of the database in a two-years time frame.

## **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

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<sup>3</sup> FAO Statistical Development Series No. 11, available at: <http://www.fao.org/es/ess/census/wca2010.asp>

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1988, the HS classification has undergone regular review and in January 2007 an updated version of the HS was released, with the next one expected in 2012. The maintenance of the HS is a priority of WCO, which manages this process through the Harmonized System Committee (representing the Contracting Parties to the HS Convention). The revision of the HS is a complex and lengthy process which is done in selected periods of time and can be completed only through several Sessions of the Harmonized System Review- Sub-Committee of WCO.

The present HS codes for fish and fishery products do not provide sufficient details on the level of processing of the traded products or on the classification of species originating in developing countries or in the Southern hemisphere. Many of these species are recorded in generic groups. This deficiency was also communicated to FAO by several countries. They requested FAO to approach WCO for improving the HS in order to enable the monitoring of economic trends and include a wider range of products. Following the instructions of the 25<sup>th</sup> Session of the Committee on Fisheries (COFI), and of the 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> Sessions of COFI Sub-Committee on Fish Trade, FAO FIPS worked on a proposed revision to be submitted to WCO.

As the need to improve the HS classification for monitoring the entire agricultural trade was also emphasized by other departments of FAO, on 30 March 2007, FAO submitted a joint proposal for the revision of the codes related to agriculture, forestry and fishery products to WCO. This proposal was thoroughly reviewed and consequently revised to take into account the outcome of the meetings (35<sup>th</sup>, 36<sup>th</sup>, 37<sup>th</sup> and 38<sup>th</sup> Sessions) of the Harmonized System Review- Sub-Committee of WCO in 2007 and 2008. In March 2009, FAO also attended the 43<sup>rd</sup> Session of the Harmonized System Committee of the WCO in March 2009. The 43<sup>rd</sup> Session was the last and decisive one for this revision cycle. This Committee was responsible for the final approval of the FAO proposal through a voting system, which required a majority of two-thirds and the general consensus was reached on the majority of the proposal. These recommended amendments were then submitted to the WCO Council for final approval. The WCO Council adopted the Recommendation at its annual sessions in June 2009 and the Recommendation was then promulgated under the provisions of Article 16 of the Harmonized System Convention. The HS Contracting Parties had 6 months (until 07 January 2010) during which they could object to a recommended amendment. With the WCO Council Recommendation of 26 June 2009 the recommended amendments to the Harmonized System Nomenclature will enter into force for all Contracting Parties to the Harmonized System Convention on 1 January 2012.

The FAO modifications for HS codes of fish and fishery products try 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 around 90 new commodities (species by different product form) were introduced. The choice of the added species was based on their present and future economic importance as well as on the monitoring of potentially endangered species. Among species introduced are Nile perch, carps, tilapia, catfish, turbot, 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 cured form, the subdivision of caviar from other substitutes, the split of molluscs from other aquatic invertebrates and the distinction of seaweeds for human consumption and other purposes. This last introduction will be very useful for the calculation of the FAO Food Balance Sheets which could finally take seaweeds into consideration. The structure of HS2012 for fish and fishery products, including its comparison with HS2007, is attached as Appendix 2.

During the four Sessions of the Harmonized System Review- Sub-Committee of WCO and the 43<sup>rd</sup> Session of the Harmonized System Committee of the WCO in March 2009 agreement was not reached on selected parts of the initial proposal, for example on the utilization of the terms “freshwater fish”, “Pelagic fish” and “Gadiformes”. In order to create groupings for these species, it was then necessary to adopt a simple listing of selected families and species as headings for these groups. Furthermore, FAO had to withdraw from the initial proposal the split for capture and aquaculture origin for salmonoids and shrimps due to the very strong reservations expressed by countries.

## ***Fishing fleets and HSVAR:***

### **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.

### **HSVAR**

Since the CWP-22, Oman, Mozambique, Brazil and Senegal have joined the Compliance Agreement and 38 countries<sup>4</sup> and 1 entity (EC) are the member. 17 countries independently and 22 countries through EC have provided authorized vessel data and two countries informed the absence of vessels involved in high sea operations. As at 16 February, 2010, HSVAR database has accumulated a total of 7 556 records, of which 6 162 appear as having their authorization current, meaning that no termination date has been expressly indicated by the reporting country. Of those vessels presently authorized, 24 % have a unique IMO number associated and 86.2 % include all three variables (length, tonnage, and power) so that could be amenable to fleet composition analyses.

Of those countries presently part of the Compliance Agreement, two have been updating information on a continuous basis. Belize has been regularly sending monthly reports of the whole authorized high seas fleet indicating any additions or deletions of vessels to the registry. On the other hand, Seychelles has been constantly informing about the change of status (additions or deletions) of vessels in their registry. Efforts were made in 2009 to re-contact countries and request updates. There have been positive responses from Argentina, Chile, Cyprus, and the United States of America. Japan has also provided data during 2008-2009.

The fleet statistician was recruited in February 2010 and some of previously identified problems including low maintenance and lack of evaluation of data would be improved substantially. Lloyds/IMO number is quite useful as a unique identifier because of its coherence to the vessel itself and Lloyd's Register data supplied by Fairplay with charge seems to track vessel transaction reasonably well and with acceptable timeliness. Currently, Lloyds/IMO number is not a mandatory information for many of

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<sup>4</sup> Cyprus and Sweden had participated to the Agreement prior to joining the EC, then counted as Member countries.

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the vessel lists and registration systems, including HSVAR. FIPS is now requesting this information systematically and would like to ask for other Members' cooperation.

### **Global vessel list**

The Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels is an international response to the global IUU fishing problem. Initially promoted by the Ministerial Meeting on Fisheries held in Rome in 2005, the Global Record feasibility study and ongoing development has been progressed within FAO with the support of the Committee on Fisheries (COFI).

It is envisaged as a global repository (database) designed primarily to provide reliable identification of vessels authorized to engage in fishing or fishing related activity. An essential element will be the assignment of a unique identifier (number) to each vessel (UVI) so that regardless of ownership or flag changes over time, the UVI will remain constant. Once the core vessel record is established, it will be possible to associate a wide range of information modules providing a comprehensive information picture on all aspects of the vessel's operation, such as:

- Port State Measures Data (port visits, inspections)
- Fishing Authorisation Data
- Other MCS Data (at-sea inspections, offending histories, detentions, etc.)
- Vessels of Interest Lists (White, Black, Other)
- Maritime Security Data
- Maritime Safety Data (Port State Control, Inspections, Deficiencies, Detentions, P & I Information, etc – Torremolinos Protocol when in effect)
- Aggregated Catch Data
- Any other information that FAO Member States deem appropriate

The Global Record will be web-based with simple, user-friendly search facilities making it accessible to a wide variety of users. The levels of access are yet to be determined but the 2008 Expert Consultation recommended that access to information should be as open as possible. With this principle in mind, development of the Global Record will provide a level of transparency in the fishing sector that is badly needed. The current lack of transparency is facilitating many of the problems and behaviours that need to be addressed and IUU fishing will not be eradicated until transparency becomes the accepted norm. Of major concern to the Project Team is the lack of current vessel information either in the public domain or through FAO. Careful analysis has been undertaken into a number of RFMO vessel records, the LR-F fishing vessel database and the EU fishing vessel register, however these are the only example of comprehensive vessel record available in the public domain.

Other key workstreams have included a comprehensive study of UVI options along with the phasing options for implementation. While the Expert Consultation recommended that the scope of the Global record should be as broad as possible—all fishing vessels—the reality is that the initial emphasis should be on those vessels that pose the greatest risk. Efforts have also been made to better understand the development requirements of the international fisheries community so that States can maximise the benefits available through the Global Record. Those development requirements will be documented and considered as part of the Technical Consultation in the hope that they can be addressed through the implementation plan. Further user-needs workshops are planned for Central America and Southern Africa.

Development work will continue ahead of a Technical Consultation to be held at FAO in the latter part of 2010. This Technical Consultation will consider FAO's research and recommendations and decide the scope and future operation of the Global Record. Part of that research has involved FAO working closely with a number of RFMOs. In particular, NEAFC has agreed to participate in a Global record trial using IMO's GISIS database. The joint tuna RFMO's have also demonstrated outstanding sector leadership in their drive to create a harmonised global record of tuna vessels incorporating the IMO number as the UVI for each vessel. The development process for this work is providing important insights for the Global Record and these partnerships are valued by FAO.

**FAO's VMS Questionnaire:**

In 2007 the FAO developed and distributed a comprehensive questionnaire/inventory on VMS, in part to help inform the CWP. Nearly 400 data fields were on the questionnaire. It was sent to a total of 190 recipients, 165 countries/fishing entities and 25 organizations. Slightly more than 100 responses were received, which is rather high comparatively. This level of response was achieved through repeated follow-up and one-on-one work with a number of responders. Fifteen of the 25 organizations (RFB/RFAs) responded. While FAO is still in the process of building the data base for all of this information, a few preliminary results may be of interest. Officially about 23,000 vessels were reported as using VMS, although through a number of other sources, we know there are a much greater number of vessels using VMS. Significant differences remain among countries in any particular region and among the regions regarding VMS adoption and implementation. While VMS is seen as a very useful tool, many countries do not have a clear strategy for integrating VMS into achieving the objectives of their fisheries management plans. Legal reliance on VMS evidence was also low. Sharing VMS data takes place but on limited scales.

***Number of fishers:***

Due to the delay in recruiting the statistician responsible for fleet and fisher data, the dissemination process for fisher statistics has been suspended since the last dissemination of data in 1999, through the FAO Fisheries Circular No. 929, rev. 2, "Number of fishers, 1970-1997". In the meantime, fisher questionnaires (FM) have been sent to member countries as previously and data received for the years 1998-2008 were regularly inserted in the database. However, no evaluation of data as well as no attempt to fill gaps and missing data was done. The response rate is rather low and some of the reported data are considered as only partial coverage and others are totally lacking information on type and category of employment.

***Supply/Utilization account:***

In 2009, updating to 2005 of the Supply Utilization Accounts (SUAs) and Food Balance Sheets (FBS) for fish and fishery products has been finalized. Starting with this last update, the FIPS decided to include the apparent fish consumption statistics derived from FBS as a part of the the FAO Yearbook of Fishery and Aquaculture Statistics. Accordingly, the publication of the FAO Fisheries Circular No. 821 would be terminated. The most updated statistics is shown in the CD-ROM of the FAO Yearbook of Fishery and Aquaculture Statistics, as a section "1961-2005. Fish and fishery products. World apparent consumption statistics based on Food Balance Sheets". Moreover, thanks to the introduction of an independent working module for the calculation and maintenance of SUAs and FSB, the updating time lag has been significantly reduced.

**Review and update of nutrition conversion factors**

At present FIPS calculates the Supply Utilization Accounts (SUAs) and Food Balance Sheets (FBS) for fish and fishery products for eight main groups of species and specifically:

- freshwater and diadromous fish;
- demersal fish;
- pelagic fish;
- other marine fish n.e.i.;
- crustaceans;
- cephalopods;
- molluscs excluding cephalopods;
- aquatic animals n.e.i.;

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In order to obtain a better picture of actual utilization pattern of fish and fishery products, as well as to better reflect the actual contribution of different groups to food and nutrient, it was decided to separate “freshwater fish” and “diadromous fish”, as well as to divide “pelagic fish” into “tunas/tuna like species” and “other pelagic fish”. In view of this modification, a consultant was hired to review and update the nutrition conversion factor used in FBS for main groups of fish and fishery products by product form (fresh, frozen, fillets, cured, etc.). The consultant prepared a database on calories, proteins and fats, calcium, iron, retinol, Beta Carotene, Thiamine, Riboflavine, Niacin, Ascorbic Acid and Refuse by species/product form. Work is in progress to analyze, evaluate and validate the nutritional database received and link these data to the production database. The average nutritional factors obtained will be used in the near future to update the food composition factors to be used for the calculation of the FBS for fish and fishery products.

### **Relationship with FAOSTAT**

Although FIPS is responsible for the estimation of SUAs and FBS for fish and fishery products, the FAO Statistics Division prepares SUAs and FBS for agricultural products and both of them are disseminated together through the framework of “FAOSTAT”, also managed by the FAO Statistics Division (ESS). In 2006 the FAO Statistics Division launched the so called “FAOSTAT 2” system to cover the whole process from data input, data processing and evaluation, to estimation of SUAs and FBS and dissemination. This new “FAOSTAT” system aimed to resolve possible relative reliability of basic trade and production information by adjusting data automatically, and estimating SUAs and FBS through multi-variables error minimization process. The implementation was not successful, with very low results in terms of quality of the data and FAOSTAT 2 was subsequently replaced with a provisional working module. Therefore, FIPS has decided to maintain, at least for the time being, an independent working system for apparent consumption of fish and fishery products and to provide FAOSTAT system with already standardized data for dissemination. In the meantime the collaboration with FAO ESS keeps on being active on the methodological and technical side, also in the light of FAOSTAT’s future evolution and change.

### ***Standard concepts and codes:***

#### **Gear classification**

An International Standard Statistical Classification of Fishing Gear (ISSCFG) was originally drawn up in 1971 and adopted by the Coordinating Working Party on Fishery Statistics (CWP) sponsored by FAO/ICES/ICNAF in 1980, with the primary aim of helping to prepare statistics on fish catches by gear type in the North Atlantic Area. A revised edition was published in 1990 (FAO Technical Report 222/Rev.1). At the instigation of FAO, a group of technical experts was formed from the ICES/FAO Working Group on Fishing Technology and Fish Behaviour (WGFTFB) to advise on updating the technical content of the publication. The group met in Rome (2005) and Izmir (2006). A revised draft of the text was prepared prior to the WGFTFB meeting in Dublin (April 2007) and subsequently FAO commissioned a completely new set of illustrations from SEAFDEC during 2008/09. At the ICES/FAO WGFTFB meeting in Ancona Italy (May 2009), a meeting was held between WGFTFB members and the Secretary of CWP to coordinate the process of finalising the new edition. A revised classification, descriptive text and standard abbreviations have now been prepared (Appendix 3). The new illustrations are not yet complete.

The main purposes of the revision of the ISSCFG and of FAO Technical Report No 222 are considered to be:

- to update the Classification to include explicitly types of fishing gear which have been developed or have risen in prominence to become of major importance since the last revision;

- 
- to simplify the structure of the Classification by reducing the number of levels at which gears are defined and hence permit more detailed categorization, if needed at regional or national level of administration;
  - to improve the descriptions of fishing gear for the purposes of basic reference and for general information to all specialists, technicians and workers concerned with fisheries administration, control and surveillance, training, research and extension services; and
  - to include explicitly all major gear categories which may potentially be used to identify individual fisheries. These gears are considered to be those which have unique operational or design characteristics and therefore are likely to exert distinctly defined fishing mortalities on a stock or range of stocks.

ICES/FAO WGFTFB invites the CWP to review the revised classification and text with a view to reflect into new ISSCFG.

### **Catch diagram and bycatch definition**

FAO organized the Expert Consultation on International Guidelines for Bycatch Management and Reduction of Discard, held in Rome, Italy, between 30 November to 3 December 2009, following the decision taken at the 28<sup>th</sup> session of COFI in 2009. There is no single definition of bycatch which is used intentionally. In general, the concept of bycatch can be associated with either or combination of ‘unused catch’, ‘unintended catch’, ‘inappropriate catch’, and ‘unaccounted catch’. There is also a confusion with discard or discarded, either dead or alive. Then, FAO proposed a definition of “reported bycatch” and “unreported bycatch” (shown in Appendix 4) based on the CWP Catch Concept Diagram (Appendix 5) for the purpose of the Guideline. The Expert Consultation reviewed the proposal but did not reach the conclusion. The draft of International Guidelines for Bycatch Management and Reduction of Discard is still under development.

### **Global strategy improving Agriculture statistics**

#### ***Data exchanges and dissemination:***

##### **Recommendations from UNGA**

The UNFSA Review Conference held in May 2006 in New York specifically recommended that FAO. (a) “establish arrangements for the collection and dissemination of data in accordance with Article 7 of Annex I to the Agreement, where none exists” and (b) “revise its global fisheries statistics database to provide information for the stocks to which the Agreement applies, as well as to high seas discrete stocks on the basis of where the catch was taken.”<sup>5</sup> The 61<sup>st</sup> Session of UNGA in November 2006<sup>6</sup> reiterated the same recommendations in I-15 and 16 as well as in I-8 in a more indicative way.

FAO raised the issue at the CWP-22 proposing to address this by establishing a global dissemination system that would make it possible to link and disseminate RFMOs’ data in a harmonized way from one place, where the RFMOs maintain the ownership and responsibility of compilation, evaluation, and analyses for disseminated data. The CWP-22 recommended that FAO establish a consolidated catch database based on the publicly available data and under general guidelines established at the time of the previous consolidation exercise.

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<sup>5</sup> A/CONF/.210/2006/15, Annex, Paragraph 25, 26

<sup>6</sup> United Nations A/61/L.38 . General Assembly. 27 November 2006. Sixty-first session. Agenda item 71 (a)

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Accordingly, with the support of EC D4Science and Japanese Trust funds, FAO initiated a project to establish the Integrated Capture Information System (ICIS). The objectives of ICIS include:

- to establish an infrastructure to allow access to, extraction from and dissemination of all statistical information in harmonized format;
- to facilitate conversion from one format to the other;
- to provide estimates of catch taken within EEZs and those in high sea areas, especially for FAO statistics; and
- to provide consolidated best available catch statistics based on expert knowledge and judgement.

In order to enable this, FAO is engaged in several up-stream and down-stream projects. This includes a standalone application for conversion of diverse reporting formats to a standardized storage format, without employing advanced re-allocation algorithms or collaborative data-marshalling policies. Once standardized storage has been achieved, data exchange using an internationally accepted format such as SDMX will be developed. FishStatJ is considered to be utilized as a standard dissemination tool. It is also planned to connect a GIS platform which can provide spatial data processing and mapping services. All of them are still under development.

### **New version of FishStat**

FishStat is a standalone software application broadly used by FAO and CWP member agencies to disseminate fishery statistics. FishStat is a Visual Basic 4.0 (16-bit) desktop application that relies on a proprietary Microsoft Access database, developed with MS tools of the Windows 95 generation. FishStat is a MS Windows dependant application which does not support different platforms (it cannot for example be installed on Macintosh or Linux platforms). A number of users have complained about this limitation.

With the advent of new MS Windows operating system versions (XP, Vista), the software installation and operation experience an increasing number of problems, as testified from users feedback, which are seriously limiting its effectiveness and preventing some run time features to work as expected. No consistent diagnostic is possible to make, as issues sometimes depend on local configurations of MS operating system. The upgrade of the current version as a VB 6.0 (32-bit) is not viable due to the unavailability of some required 3rd part Visual Basic libraries and to the limited code ownership.

The software architecture, designed 14 years ago, has been able to accommodate a wide variety of fishery statistics, but there are now new requirements which would imply modifications to the software design, impossible to implement considering above mentioned limitations.

The report of CWP 21 meeting (2005) states that *“most CWP member users are satisfied with FISHSTAT 2.3 even though the programme has some weaknesses, i.e. problems of installation on new Windows platforms and difficulties when setting up new datasets. If and when a new version is developed, it is recommended that the user interface should not be changed substantially and that the new software should be thoroughly tested before being distributed.”*

Beyond CWP experts, the FishStat software interface is well known and accepted by the users, but the “look and feel” and some usability aspects of the interface are now felt outdated and old fashion.

It was therefore agreed that FAO/FI should lead a major FishStat upgrade process, adhering to FAO/FI software development standards, non-proprietary and platform independent solutions, consistency with the current FAO/FI statistical software framework, in consultation with CWP members, for release planned within 2010.

The new product, FishStatJ, is under development in FAO/FI. A beta release, covering all the dissemination features of the previous FishStat, is currently available for validation and feedback by CWP members willing to join a collaborative beta testing and feedback collection process.

The final product, covering as well the datasets management features, is envisaged to be released in operation along 2010, depending also on the mentioned CWP members feedback process.

## **SDMX**

FAO/Fisheries is in the process of implementing the SDMX (Statistical Data and Metadata eXchange, <http://sdmx.org>) international standard to structure the interchange of data and metadata. SDMX will therefore potentially infrastructure the collection, dissemination, analysis and look-up of FAO global datasets.

At this point all the FAO fisheries and aquaculture SDMX artefacts are in a beta phase. A SDMX Registry for metadata publishing has been installed. A prototype of a SDMX dataset publisher through a web service (REST) interface is in development. The SDMX Registry holds currently the SDMX codelists for ASFIS (species) and FMFA (FAO Major Fishing Areas). Subsequent SDMX artefacts will be published, like the SDMX data structure definitions (DSD) for the FAO global capture dataset.

FAO/Fisheries is implementing SDMX in a cooperation with Eurostat and ICES. Within this cooperation, it was envisaged that other CWP members might be interested in getting involved, considering extremely beneficial the adoption of an international standard in fishery statistics exchange. In this vision, it might be worth considering a CWP SDMX Registry as shared fishery statistical data publishing service, rather than having FAO publishing CWP SDMX artefacts.

Besides FAO/Fisheries there are two other (major) SDMX implementations running within FAO, CountryStat and FAOSTAT3.

### ***Capacity building (FishCode-STF):***

Support to capacity-building for fishery statistics is mainly provided through FAO FishCode-STF Programme which was launched in November 2004 under the FishCode. The programme supports the implementation of the FAO strategy for improving information on status and trends of capture fisheries. Major geographical areas of activities are SE Asia, China and West Africa.

## Appendix 1.

First Annual Meeting of SEAFO Sub-Committee of the Scientific Committee  
Swakopmund, Namibia, 1-3 October 2007

### Proposal for a revision of FAO Fishing Area 47 statistical divisions with a view to a collaboration between FAO and SEAFO in the compilation of national capture data

Luca Garibaldi<sup>7</sup> and Hashali Hamukuaya<sup>8</sup>

The FAO Fisheries and Aquaculture Information and Statistics Service (FIES) regularly updates the regional database for the FAO Fishing Area “47 - Southeast Atlantic”, which includes data by statistical divisions since 1975 and is a continuation of the database created by the International Commission for the Southeast Atlantic Fisheries (ICSEAF). However, the present utility of this database has been questioned several times as it provides only limited information of interest to SEAFO, the fishery regional body presently operating in this area, given that its Convention Area (outside the EEZs) and the statistical divisions do not coincide.

This issue was discussed at the 22<sup>nd</sup> Session of the Coordinating Working Party on Fishery Statistics (CWP), 27 February-2 March 2007, Rome, Italy, and included in the report of the Session as follows: *“FAO and SEAFO suggested to conduct in the near future a joint study to analyze if it is feasible to rearrange the statistical divisions of Area 47 in a way that would both reduce to a minimum the disruption of historical data series and allow the reporting and compilation of data for the SEAFO Convention Area in the future. Results of this study should be presented to the appropriate SEAFO body and reported to CWP at the 23<sup>rd</sup> session.”*

#### Present situation

Major FAO Fishing Area “47 - Southeast Atlantic” is presently subdivided into the following divisions (Figure 1 and Table 1).

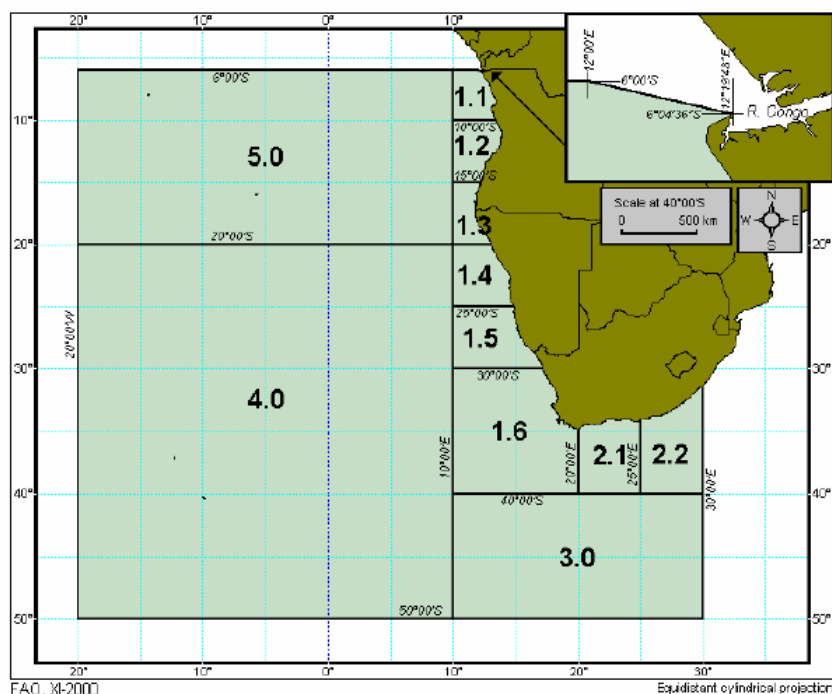


Figure 1. The “Area 47 - Southeast Atlantic” and its statistical divisions

<sup>7</sup>Fisheries and Aquaculture Information and Statistics Service (FIES), FAO Fisheries and Aquaculture Department.

<sup>8</sup> SEAFO Secretariat, Walvis Bay, Namibia.

Table 1. Codes and names of the “Area 47 - Southeast Atlantic” statistical divisions

Division code	Division name
47.1.1	Cape Palmeirinhas
47.1.2	Cape Salinas
47.1.3	Cunene
47.1.4	Cape Cross
47.1.5	Orange River
47.1.6	Cape of Good Hope
47.2.1	Middle Agulhas
47.2.2	Eastern Agulhas
47.3.0	Southern oceanic
47.4.0	Tristan da Cunha
47.5.0	St Helena and Ascension
47.1.9	Western coastal, not known
47.2.9	Agulhas coastal, not known
47.9.0	Not known (Atl. SE area)
47.0.0	Tunas (Atl. SE area)

The SEAFO Scientific Committee recommended to subdivide the SEAFO Convention Area into four large divisions (A-D) (see map<sup>9</sup> in Figure 2). One sub-division area has been identified within each of these four divisions.

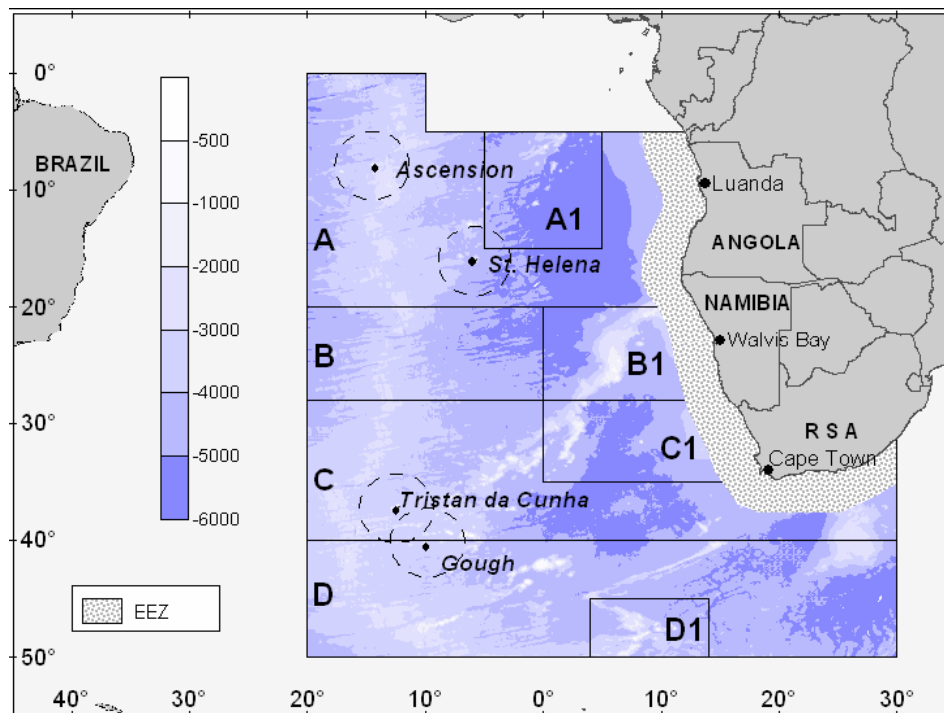


Figure 2. The SEAFO Convention Area with recommended divisions and sub-divisions

<sup>9</sup>Information and map derived from the 2006 Report of the SEAFO Scientific Committee (27-29 September 2006, Windhoek, Namibia) downloaded at <http://www.seafo.org/>. Note: in the above map, the northern boundary of the SEAFO Convention Area along 6° latitude South is instead represented at 5° latitude South.

### Proposal for a revision of Area 47 statistical divisions

A possible revision of Area 47 statistical divisions should take into account both continuity and consistency of the data series presently held in the FAO [Southeast Atlantic capture production](#) database as well as the characteristics of the SEAFO Convention Area, which covers all waters in Area 47 with the exclusion of the EEZs of the continental states. Therefore, in this proposed revision we separately considered the two major groups of statistical divisions (“coastal” and “oceanic”) in which Area 47 is presently subdivided. Table 2 summarizes the proposed changes by group of divisions, which can be visualized in the map in Figure 3.

Table 2. Proposed revisions by group of divisions

<b>Group of divisions</b>	<b>Present FAO divisions</b>	<b>Revision of divisions’ boundaries</b>	<b>Possible revisions in the data series of the Area 47 database</b>
coastal divisions	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.1, 2.2	offshore boundaries as the EEZs boundaries, boundaries between divisions would remain unchanged	all data moved to the corresponding new divisions
oceanic divisions	3.0, 4.0, 5.0	boundaries between divisions as those of SEAFO divisions (A, B, C, D) and sub-divisions (A1, B1, C1, D1)	the possibility of assigning historical data from divisions 3.0, 4.0, and 5.0 to new oceanic divisions and sub-divisions should be examined
unspecified divisions (catches for which the statistical division is not exactly known)	1.9, 2.9, 9.0	no changes	data for 1.9 and 2.9 moved to new 1.9 and 2.9 unchanged; historical data for division 9.0 should be verified for the possibility of assigning catches of oceanic species to the new oceanic divisions, all other data moved to new 9.0 unchanged
tunas	0.0	no changes	data for 0.0 moved to new 0.0 unchanged

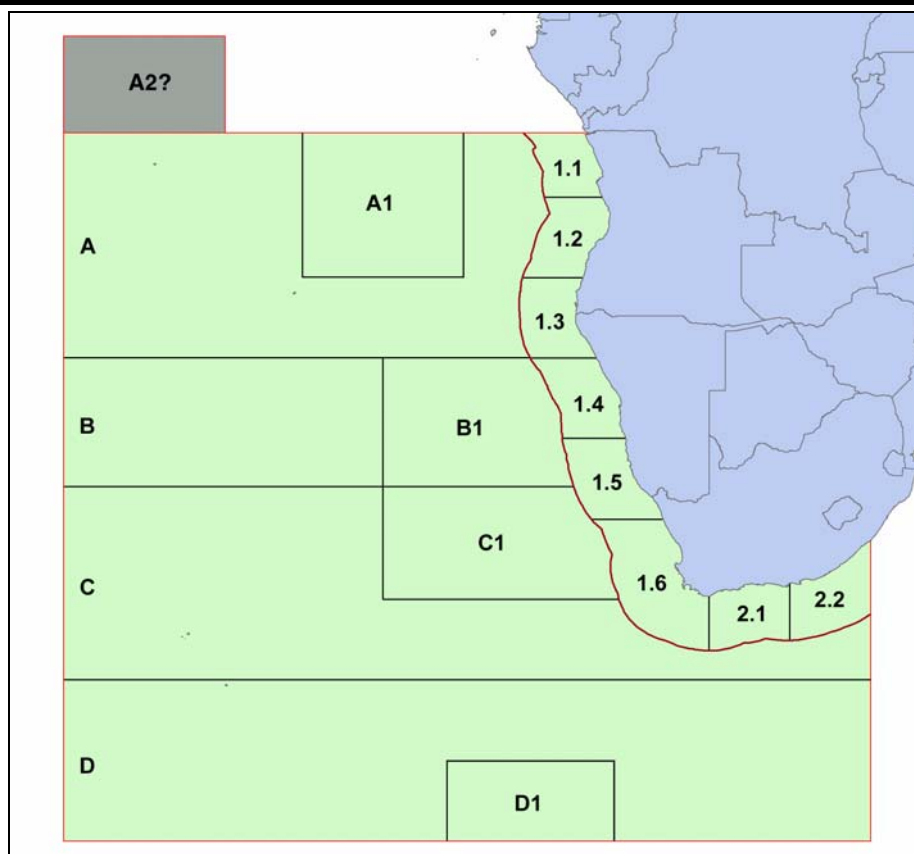


Figure 3. Proposed boundaries of new statistical divisions and sub-divisions for Area 47

It should be noted that there is a major inconsistency between the SEAFO Convention Area and the FAO Fishing Area 47, i.e. the rectangle bounded by a line joining the following points  $0^{\circ}$ - $20^{\circ}$ W;  $0^{\circ}$ - $10^{\circ}$ W;  $6^{\circ}$ S- $10^{\circ}$ W;  $6^{\circ}$ S- $20^{\circ}$ W (darker area in Figure 3) that in the FAO global grid of Major Fishing Areas belongs to Area 34 and not to Area 47. If organizations are interested in proceeding towards a common questionnaire (see below), then FAO and SEAFO should seek to amend this inconsistency. A possible solution would be to create a new sub-division (temporarily called “A2”) within the present SEAFO’s “A” division, matching the above mentioned area. In this way, SEAFO would consider the catches reported for the “A2” division as taken within its Convention Area, whereas FAO would allocate the same data to FAO Fishing Area “34 – Eastern Central Atlantic” according to the definition of the FAO Major Fishing Areas.

Envisaged possible developments and advantages for both FAO and SEAFO by an agreed subdivision of Area 47 and a common questionnaire for catch statistics

This proposed revision would allow FAO and SEAFO to establish a common questionnaire for the collection of catch statistics by divisions and subdivisions in Area 47. This questionnaire would be easily made available incorporating the revised divisions into the STATLANT 47A questionnaire, the format currently used by FAO to collect catch data by divisions in Area 47.

A common FAO-SEAFO questionnaire would provide advantages for both organizations and also for nations fishing in the area by reducing the burden in the preparation of catch reports to the two organizations. This opportunity may also provide a stimulus to revitalize efforts to improve national data collection schemes in the overall region. SEAFO would gain access to data on oceanic catches not only for members but also for those countries which are not members of SEAFO but that report catch statistics to FAO by the STATLANT 47A. The collaboration of FAO with SEAFO, an organization based in the

region and with continuous contacts with coastal states, could facilitate reporting also of non-oceanic catches in Area 47, which is useful to FAO for its Global capture database.

#### How would the common questionnaire work?

Besides its work on fishery statistics standards, the CWP also provides a mechanism to coordinate fishery statistical programmes of its members. SEAFO is encouraged to apply for membership of the CWP as this would help in developing and strengthening the collaboration between FAO and SEAFO in the field of fishery statistics, and would also allow SEAFO to participate in future discussions with relevant intergovernmental organizations about the improvement of statistical activities.

In the CWP framework, FAO dispatches the paper and electronic questionnaires for regional catch statistics (mostly called STATLANT XX questionnaire) to the national correspondents on behalf of several Regional Fishery Bodies (RFBs) and also takes follow-up actions to non-responding countries. National correspondents are requested to return the questionnaire duly completed to both FAO and the relevant RFB. For its Global capture database, FAO utilizes only the catch data for the entire fishing area, whereas the RFB compiles also the data by subareas/divisions which are later disseminated by the RFB itself either through the RFB's dedicated software and/or the FAO's FISHSTAT+ platform.

This arrangement has been in place for many years with NAFO (FAO Fishing Area "21 – Northwest Atlantic"), ICES (FAO Fishing Area "27 – Northeast Atlantic"), and CCAMLR (FAO Fishing Areas "48, 58, 88 – Southern Ocean"). FAO, together with these RFBs, routinely compare the data held in the respective databases to avoid any major discrepancies that may arise in the processing and storing of the data as well as from the utilization by FAO of data derived from other sources, including other FAO questionnaires (e.g. the FAO's NS1 "National Summary – Capture Production") and those by non-FAO organizations (e.g. tuna catches compiled by the tuna regional bodies).

The collaboration between FAO and SEAFO could take place along the same lines as that between FAO and the RFBs mentioned above. It should be noted that, unlike to the three RFBs, the SEAFO Convention Area does not correspond to a whole FAO Fishing Area but only to a portion of it (i.e. area outside the EEZs). However, this should not impede the agreement of a similar arrangement between FAO and SEAFO, although each organization should concentrate on the data which fall under its mandate. In principle, FAO would continue to compile and disseminate the regional database for the whole Fishing Area 47 while SEAFO would concentrate on the divisions covered by its Convention Area.

If this should be successfully implemented, Area 47 would become the first among the regional catch databases managed by FAO in which divisions' boundaries match the EEZs offshore boundaries. FAO receives increasing requests to incorporate more detailed catch location, especially separation between catches taken inside and outside national EEZs. Coastal countries, particularly in Northwest Africa where a significant share of catches within EEZs is taken by Distant Water Fleets (DWFs), often point out that catch statistics in international databases, such as that of FAO, should not be only recorded by the flag of the vessel but also by the EEZ. The proposed revision of divisions in Area 47 would move in this direction as, besides the spatial information by divisions, it would also allow an easy separation between catches within the EEZs and those from the high seas.

#### How would the FAO database for Fishing Area 47 be modified if the revised divisions are implemented?

Presently, the FAO Fishing Area "47 - Southeast Atlantic" regional database<sup>10</sup> includes catch statistics for a 31-year period (1975-2005). Older data were collected under the *aegis* of ICSEAF, the commission that was in charge of the whole Area 47 until it ceased its activities in 1990. In the early 2000s, FAO resumed the compilation and updating of this database as the majority of the countries fishing in the area had continued to submit catch data by the STATLANT 47 questionnaire. This data could provide interesting information on historical catch trend in the area, particularly as the database includes also catch data by DWFs.

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<sup>10</sup>Database and FISHSTAT+ software to consult it are downloadable at <http://www.fao.org/fi/statist/fisoft/fishplus.asp>

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The possible implementation of revised statistical divisions would obviously have a significant impact on the database. From a given year, data for one of its three variables (country, species item, statistical division) would be recorded according to a modified spatial classification. As already seen in Table 2 and Figure 3, changes in coastal divisions would be limited, but changes in oceanic divisions would be more substantial. There are three possible options on how to deal with the divisions' modification:

1. Countries fishing in the area (particularly coastal countries) would be requested to provide backward revisions of their data according to the new divisions;
2. FAO and SEAFO would collaborate, possibly with the help of local experts, in trying to reassign some of the historical catches according to the new oceanic divisions, on the basis of the biological characteristics of the species and other information;
3. No changes would be made to the data compiled according to the old divisions; after the implementation of the divisions' modification, catch statistics would be entered in the database according to the new spatial classification and old data would stay as they were.

Option "1" would be the best solution, although is very unlikely that some countries which already have difficulties in collecting and reporting current catch statistics would be able to provide such revisions. The intermediate option "2" seems the most reasonable and feasible (see in Table 2 some preliminary indications about major re-assignments for all present FAO divisions), hoping that national authorities and local experts would help in clarifying uncertain cases that may arise. If option "3" is chosen, information by new divisions would be available only after the implementation of the change. This would provoke the disruption of several data series and trends by division but the integrity of the data as reported by the fishing nations would be maintained.

A feedback and suggestions on this issue by the national experts attending the SEAFO Sub-Committee are anticipated.

## Appendix 2. Structure of HS 2012 for fish and fishery products and comparison with HS 2007

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
<b>SECTION I- LIVE ANIMALS; ANIMAL PRODUCTS</b>		I	I
<b>CHAPTER 1- LIVE ANIMALS</b>		01	01
(...)			
<b>Other live animals</b>		01.06	01.06
- Mammals :			
-- Primates		0106.11	0106.11
-- Whales, dolphins and porpoises (mammals of the order <i>Cetacea</i> ); manatees and dugongs (mammals of the order <i>Sirenia</i> ); eared, fur and true seals, sea lion and walrus (mammals of the suborder <i>Pinnipedia</i> )	Addition of <i>Pinnipedia</i>	0106.12/.19*	0106.12
-- Other		0106.19	0106.19
- Reptiles (including snakes and turtles)		0106.20	0106.20
(...)			
- Other		0106.90	0106.90
<b>CHAPTER 2- MEAT AND EDIBLE MEAT OFFAL</b>		02	02
(...)			
<b>Other meat and edible meat offal, fresh, chilled or frozen.</b>		02.08	02.08
(...)		0208.30	0208.30
- of Whales, dolphins and porpoises (mammals of the order <i>Cetacea</i> ); manatees and dugongs (mammals of the order <i>Sirenia</i> ); eared, fur and true seals, sea lion and walrus (mammals of the suborder <i>Pinnipedia</i> )	Addition of <i>Pinnipedia</i>	0208.40/.90*	0208.40
- of Reptiles (including snakes and turtles)		0208.50	0208.50
- Other		0208.90	0208.90
(...)			
<b>Meat and edible meat offal, salted, in brine, dried or smoked edible flours and meals of meat or meat offal.</b>		02.10	02.10
(...)			
- Other, including edible flours and meals of meat or meat offal:			
-- of Primates		0210.91	0210.91
-- of Whales, dolphins and porpoises (mammals of the order <i>Cetacea</i> ); manatees and dugongs (mammals of the order <i>Sirenia</i> ); eared, fur and true seals, sea lion and walrus (mammals of the suborder <i>Pinnipedia</i> )	Addition of <i>Pinnipedia</i>	0210.92/.99*	0210.92
-- of Reptiles (including snakes and turtles)		0210.93	0210.93
-- Other		0210.99	0210.99
<b>CHAPTER 3- FISH AND CRUSTACEANS</b>	=	03	03
<b>Live fish</b>	=	03.01	03.01
- Ornamental fish :	New/split	0301.10*	
-- Freshwater	New/split	0301.10*	0301.11
-- Other	New/split	0301.10*	0303.19
- Other live fish :	=	0301.9	
-- Trout ( <i>Salmo trutta</i> , <i>Oncorhynchus mykiss</i> , <i>Oncorhynchus clarki</i> , <i>Oncorhynchus aguabonita</i> , <i>Oncorhynchus gilae</i> , <i>Oncorhynchus apache</i> and <i>Oncorhynchus chrysogaster</i> )	=	0301.91	0301.91
-- Eels ( <i>Anguilla</i> spp.)	=	0301.92	0301.92
-- Carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> ,	=	0301.93	0301.93

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
<i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> )			
-- Atlantic and Pacific Bluefin tunas ( <i>Thunnus thynnus</i> , <i>Thunnus orientalis</i> )	Correction of species descrip.	0301.94	0301.94
-- Southern Bluefin tunas ( <i>Thunnus maccoyii</i> )	=	0301.95	0301.95
-- Other	=	0301.99	0301.99
<b>Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 03.04.</b>	=	<b>03.02</b>	<b>03.02</b>
- Salmonidae, excluding livers and roes :	=		
-- Trout ( <i>Salmo trutta</i> , <i>Oncorhynchus mykiss</i> , <i>Oncorhynchus clarki</i> , <i>Oncorhynchus aguabonita</i> , <i>Oncorhynchus gilae</i> , <i>Oncorhynchus apache</i> and <i>Oncorhynchus chrysogaster</i> )	=	0302.11	0302.11
	Deleted/split	[0302.12]	[0302.12]
-- Pacific salmon ( <i>Oncorhynchus nerka</i> , <i>Oncorhynchus gorbuscha</i> , <i>Oncorhynchus keta</i> , <i>Oncorhynchus tshawytscha</i> , <i>Oncorhynchus kisutch</i> , <i>Oncorhynchus masou</i> and <i>Oncorhynchus rhodurus</i> )	New/split	0302.12*	0302.13
-- Atlantic salmon ( <i>Salmo salar</i> ) and Danube salmon ( <i>Hucho hucho</i> )	New/split	0302.12*	0302.14
-- Other	=	0302.19	0302.19
- Flat fish ( <i>Pleuronectidae</i> , <i>Bothidae</i> , <i>Cynoglossidae</i> , <i>Soleidae</i> , <i>Scophthalmidae</i> and <i>Citharidae</i> ), excluding livers and roes:	=		
-- Halibut ( <i>Reinhardtius hippoglossoides</i> , <i>Hippoglossus hippoglossus</i> , <i>Hippoglossus stenolepis</i> )	=	0302.21	0302.21
-- Plaice ( <i>Pleuronectes platessa</i> )	=	0302.22	0302.22
-- Sole ( <i>Solea</i> spp.)	=	0302.23	0302.23
-- Turbots ( <i>Psetta maxima</i> )	New	0302.29*	0302.24
-- Other	=	0302.29	0302.29
- Tunas (of the genus <i>Thunnus</i> ), skipjack or stripe-bellied bonito ( <i>Euthynnus (Katsuwonus) pelamis</i> ), excluding livers and roes :	=		
-- Albacore or longfinned tunas ( <i>Thunnus alalunga</i> )	=	0302.31	0302.31
-- Yellowfin tunas ( <i>Thunnus albacares</i> )	=	0302.32	0302.32
-- Skipjack or stripe-bellied bonito	=	0302.33	0302.33
-- Bigeye tunas ( <i>Thunnus obesus</i> )	=	0302.34	0302.34
-- Atlantic and Pacific Bluefin tunas ( <i>Thunnus thynnus</i> , <i>Thunnus orientalis</i> )	Correction of species descrip.	0302.35	0302.35
-- Southern Bluefin tunas ( <i>Thunnus maccoyii</i> )	=	0302.36	0302.36
-- Other	=	0302.39	0302.39
- Herrings ( <i>Clupea harengus</i> , <i>Clupea pallasii</i> ), anchovies ( <i>Engraulis</i> spp.), sardines ( <i>Sardina pilchardus</i> , <i>Sardinops</i> spp.), sardinella ( <i>Sardinella</i> spp.), brisling or sprats ( <i>Sprattus sprattus</i> ), mackerel ( <i>Scomber scombrus</i> , <i>Scomber australasicus</i> , <i>Scomber japonicus</i> ), jack and horse mackerel ( <i>Trachurus</i> spp.), cobia ( <i>Rachycentron canadum</i> ) and swordfish ( <i>Xiphias gladius</i> ), excluding livers and roes :	New	0302.40/.61/.64/.67/69*	
-- Herrings ( <i>Clupea harengus</i> , <i>Clupea pallasii</i> )	Recoded	0302.40	0302.41
-- Anchovies ( <i>Engraulis</i> spp.)	New	0302.69*	0302.42
-- Sardines ( <i>Sardina pilchardus</i> , <i>Sardinops</i> spp.), sardinella ( <i>Sardinella</i> spp.), brisling or sprats ( <i>Sprattus sprattus</i> )	Recoded	0302.61	0302.43
-- Mackerel ( <i>Scomber scombrus</i> , <i>Scomber australasicus</i> , <i>Scomber japonicus</i> )	Recoded	0302.64	0302.44
-- Jack and horse mackerel ( <i>Trachurus</i> spp.)	New	0302.69*	0302.45
-- Cobia ( <i>Rachycentron canadum</i> )	New	0302.69*	0302.46
-- Swordfish ( <i>Xiphias gladius</i> )	Recoded	0302.67	0302.47
- Fish of the families <i>Bregmaceroiidae</i> , <i>Euclichthyidae</i> , <i>Gadidae</i> , <i>Macrouridae</i> , <i>Melanonidae</i> , <i>Merlucciidae</i> , <i>Moridae</i> and <i>Muraenolepididae</i> , excluding livers and roes :	New	0302.50/.62/.63/69*	

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
-- Cod ( <i>Gadus morhua</i> , <i>Gadus ogac</i> , <i>Gadus macrocephalus</i> )	Recorded	0302.50	0302.51
-- Haddock ( <i>Melanogrammus aeglefinus</i> )	Recorded	0302.62	0302.52
-- Coalfish ( <i>Pollachius virens</i> )	Recorded	0302.63	0302.53
-- Hake ( <i>Merluccius</i> spp., <i>Urophycis</i> spp.)	New	0302.69*	0302.54
-- Alaska Pollack ( <i>Theragra chalcogramma</i> )	New	0302.69*	0302.55
-- Blue whittings ( <i>Micromesistius poutassou</i> , <i>Micromesistius australis</i> )	New	0302.69*	0302.56
-- Other	New	0302.69*	0302.59
	Deleted/recoded	[0302.61]	[0302.61]
	Deleted/recoded	[0302.62]	[0302.62]
	Deleted/recoded	[0302.63]	[0302.63]
	Deleted/recoded	[0302.64]	[0302.64]
	Deleted/recoded	[0302.65]	[0302.65]
	Deleted/recoded	[0302.66]	[0302.66]
	Deleted/recoded	[0302.67]	[0302.67]
	Deleted/recoded	[0302.68]	[0302.68]
	Deleted/recoded/split	[0302.69]	[0302.69]
- Tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.), excluding livers and roes :	New	0302.69*	
-- Tilapias ( <i>Oreochromis</i> spp.)	New	0302.69*	0302.71
-- Catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.)	New	0302.69*	0302.72
-- Carps ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> )	New	0302.69*	0302.73
-- Eels ( <i>Anguilla</i> spp.)	Recorded	0302.66	0302.74
-- Other	New	0302.69*	0302.79
- Other fish, excluding livers and roes :	New	0302.69*/.65/.66/.68	
-- Dogfish and other sharks	Recorded	0302.65	0302.81
-- Rays and skates ( <i>Rajidae</i> )	New	0302.69*	0302.82
-- Toothfish ( <i>Dissostichus</i> spp.)	Recorded	0302.68	0302.83
-- Seabass ( <i>Dicentrarchus</i> spp.)	New	0302.69*	0302.84
-- Seabream ( <i>Sparidae</i> )	New	0302.69*	0302.85
-- Other	New	0302.69*	0302.89
- Livers and roes	Recorded	0302.70	0302.90
<b>Fish, frozen, excluding fish fillets and other fish meat of Heading 03.04.</b>	=	<b>03.03</b>	<b>03.03</b>
- Salmonidae, excluding livers and roes :	New	0303.11-19/.21-29	
-- Sockeye salmon (red salmon) ( <i>Oncorhynchus nerka</i> )	=	0303.11	0303.11
-- Other Pacific salmon ( <i>Oncorhynchus gorbusha</i> , <i>Oncorhynchus keta</i> , <i>Oncorhynchus tshawytscha</i> , <i>Oncorhynchus kisutch</i> , <i>Oncorhynchus masou</i> and <i>Oncorhynchus rhodurus</i> )	New/split	0303.19*	0303.12
-- Atlantic salmon ( <i>Salmo salar</i> ) and Danube salmon ( <i>Hucho hucho</i> )	Recorded	0303.22	0303.13
-- Trout ( <i>Salmo trutta</i> , <i>Oncorhynchus mykiss</i> , <i>Oncorhynchus clarki</i> , <i>Oncorhynchus aguabonita</i> , <i>Oncorhynchus gilae</i> , <i>Oncorhynchus apache</i> and <i>Oncorhynchus chrysogaster</i> )	Recorded	0303.21	0303.14
-- Other	Recorded	0303.29	0303.19

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
- Tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.), excluding livers and roes :	New	0303.79*	
	Deleted/recoded	[0303.21]	[0303.21]
	Deleted/recoded	[0303.22]	[0303.22]
-- Tilapias ( <i>Oreochromis</i> spp.)	New	0303.79*	0303.23
-- Catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.)	New	0303.79*	0303.24
-- Carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> )	New	0303.79*	0303.25
-- Eels ( <i>Anguilla</i> spp.)	Recoded	0303.76	0303.26
-- Other	New	0303.79*	0303.29
- Flat fish ( <i>Pleuronectidae</i> , <i>Bothidae</i> , <i>Cynoglossidae</i> , <i>Soleidae</i> , <i>Scophthalmidae</i> and <i>Citharidae</i> ), excluding livers and roes :	=		
-- Halibut ( <i>Reinhardtius hippoglossoides</i> , <i>Hippoglossus hippoglossus</i> , <i>Hippoglossus stenolepis</i> )	=	0303.31	0303.31
-- Plaice ( <i>Pleuronectes platessa</i> )	=	0303.32	0303.32
-- Sole ( <i>Solea</i> spp.)	=	0303.33	0303.33
-- Turbots ( <i>Psetta maxima</i> )	New	0303.39*	0303.34
-- Other	=	0303.39	0303.39
- Tunas (of the genus <i>Thunnus</i> ), skipjack or stripe-bellied bonito ( <i>Euthynnus (Katsuwonus) pelamis</i> ), excluding livers and roes :	=		
-- Albacore or longfinned tunas ( <i>Thunnus alalunga</i> )	=	0303.41	0303.41
-- Yellowfin tunas ( <i>Thunnus albacares</i> )	=	0303.42	0303.42
-- Skipjack or stripe-bellied bonito	=	0303.43	0303.43
-- Bigeye tunas ( <i>Thunnus obesus</i> )	=	0303.44	0303.44
-- Atlantic and Pacific Bluefin tunas ( <i>Thunnus thynnus</i> , <i>Thunnus orientalis</i> )	Correction of species descrip.	0303.45	0303.45
-- Southern Bluefin tunas ( <i>Thunnus maccoyii</i> )	=	0303.46	0303.46
-- Other	=	0303.49	0303.49
- Herrings ( <i>Clupea harengus</i> , <i>Clupea pallasii</i> ), sardines ( <i>Sardina pilchardus</i> , <i>Sardinops</i> spp.), sardinella ( <i>Sardinella</i> spp.), brisling or spratts ( <i>Sprattus sprattus</i> ), mackerel ( <i>Scomber scombrus</i> , <i>Scomber australasicus</i> , <i>Scomber japonicus</i> ), jack and horse mackerel ( <i>Trachurus</i> spp.), cobia ( <i>Rachycentron canadum</i> ) and swordfish ( <i>Xiphias gladius</i> ), excluding livers and roes :	New	0303.51/61/71/74/79*	
-- Herrings ( <i>Clupea harengus</i> , <i>Clupea pallasii</i> )	=	0303.51	0303.51
	Deleted/recoded	[0303.52]	[0303.52]
-- Sardines ( <i>Sardina pilchardus</i> , <i>Sardinops</i> spp.), sardinella ( <i>Sardinella</i> spp.), brisling or spratts ( <i>Sprattus sprattus</i> )	Recoded	0303.71	0303.53
-- Mackerel ( <i>Scomber scombrus</i> , <i>Scomber australasicus</i> , <i>Scomber japonicus</i> )	Recoded	0303.74	0303.54
-- Jack and horse mackerel ( <i>Trachurus</i> spp.)	New	0303.79*	0303.55
-- Cobia ( <i>Rachycentron canadum</i> )	New	0303.79*	0303.56
-- Swordfish ( <i>Xiphias gladius</i> )	Recoded	0303.61	0303.57
-- Other	New	0303.79*	0303.59
- Fish of the families <i>Bregmacerotidae</i> , <i>Euclichthyidae</i> , <i>Gadidae</i> , <i>Macrouridae</i> , <i>Melanonidae</i> , <i>Merlucciidae</i> , <i>Moridae</i> and <i>Muraenolepididae</i> , excluding livers and roes :	New	0303.79*/52/72/73/78	
	Deleted/recoded	[0303.61]	[0303.61]
	Deleted/recoded	[0303.62]	[0303.62]

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
-- Cod ( <i>Gadus morhua</i> , <i>Gadus ogac</i> , <i>Gadus macrocephalus</i> )	Recorded	0303.52	0303.63
-- Haddock ( <i>Melanogrammus aeglefinus</i> )	Recorded	0303.72	0303.64
-- Coalfish ( <i>Pollachius virens</i> )	Recorded	0303.73	0303.65
-- Hake ( <i>Merluccius</i> spp., <i>Urophycis</i> spp.)	Recorded	0303.78	0303.66
-- Alaska Pollack ( <i>Theragra chalcogramma</i> )	New	0303.79*	0303.67
-- Blue whittings ( <i>Micromesistius poutassou</i> , <i>Micromesistius australis</i> )	New	0303.79*	0303.68
-- Other	New	0303.79*	0303.69
	Deleted/recoded	[0302.71]	[0302.71]
	Deleted/recoded	[0302.72]	[0302.72]
	Deleted/recoded	[0302.73]	[0302.73]
	Deleted/recoded	[0302.74]	[0302.74]
	Deleted/recoded	[0302.75]	[0302.75]
	Deleted/recoded	[0302.76]	[0302.76]
	Deleted/recoded	[0302.77]	[0302.77]
	Deleted/recoded	[0302.78]	[0302.78]
	Deleted/recoded/split	[0302.79]	[0302.79]
- Other fish, excluding livers and roes :	New	0303.62/.75/.77/79*	
-- Dogfish and other sharks	Recorded	0303.75	0303.81
-- Rays and skates ( <i>Rajidae</i> )	New	0303.79*	0303.82
-- Toothfish ( <i>Dissostichus</i> spp.)	Recorded	0303.62	0303.83
-- Seabass ( <i>Dicentrarchus</i> spp.)	Recorded	0303.77	0303.84
-- Other	New	0303.79*	0303.89
- Livers and roes	Recorded	0303.80	0303.90
<b>Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen.</b>	=	<b>03.04</b>	<b>03.04</b>
	Deleted/split	[0304.11]	[0304.11]
	Deleted/split	[0304.12]	[0304.12]
	Deleted/split	[0304.19]	[0304.19]
	Deleted/split	[0304.21]	[0304.21]
	Deleted/split	[0304.22]	[0304.22]
	Deleted/split	[0304.29]	[0304.29]
- Fresh or chilled fillets of tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.) :	New	0304.19*	
-- Tilapias ( <i>Oreochromis</i> spp.)	New	0304.19*	0304.31
-- Catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.)	New	0304.19*	0304.32
-- Nile Perch ( <i>Lates Niloticus</i> )	New	0304.19*	0304.33
-- Other	New	0304.19*	0304.39
- Fresh or chilled fillets of other fish :	New	0304.19*	
-- Pacific salmon ( <i>Oncorhynchus nerka</i> , <i>Oncorhynchus gorbuscha</i> , <i>Oncorhynchus keta</i> , <i>Oncorhynchus tshawytscha</i> , <i>Oncorhynchus kisutch</i> , <i>Oncorhynchus masou</i> and <i>Oncorhynchus rhodurus</i> ), Atlantic salmon ( <i>Salmo salar</i> ) and Danube salmon ( <i>Hucho hucho</i> )	New	0304.19*	0304.41
-- Trout ( <i>Salmo trutta</i> , <i>Oncorhynchus mykiss</i> , <i>Oncorhynchus clarki</i> , <i>Oncorhynchus aguabonita</i> , <i>Oncorhynchus gilae</i> , <i>Oncorhynchus apache</i> and	New	0304.19*	0304.42

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
<i>Oncorhynchus chrysogaster</i>			
-- Flatfish ( <i>Pleuronectidae</i> , <i>Bothidae</i> , <i>Cynoglossidae</i> , <i>Soleidae</i> , <i>Scophthalmidae</i> and <i>Citharidae</i> )	New	0304.19*	0304.43
-- Fish of the families <i>Bregmacerotidae</i> , <i>Euclichthyidae</i> , <i>Gadidae</i> , <i>Macrouridae</i> , <i>Melanonidae</i> , <i>Merlucciidae</i> , <i>Moridae</i> and <i>Muraenolepididae</i>	New	0304.19*	0304.44
-- Swordfish ( <i>Xiphias gladius</i> )	New/split	0304.11*	0304.45
-- Toothfish ( <i>Dissostichus</i> spp.)	New/split	0304.12*	0304.46
-- Other	New	0304.19*	0304.49
- Other, fresh or chilled :	New	0304.19*	
-- Tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.)	New	0304.19*	0304.51
-- Salmonidae	New	0304.19*	0304.52
- Fish of the families <i>Bregmacerotidae</i> , <i>Euclichthyidae</i> , <i>Gadidae</i> , <i>Macrouridae</i> , <i>Melanonidae</i> , <i>Merlucciidae</i> , <i>Moridae</i> and <i>Muraenolepididae</i>	New	0304.19*	0304.53
-- Swordfish ( <i>Xiphias gladius</i> )	New/split	0304.11*	0304.54
-- Toothfish ( <i>Dissostichus</i> spp.)	New/split	0304.12*	0304.55
-- Other	New	0304.19*	0304.59
- Frozen fillets of tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.) :	New	0304.29*	
-- Tilapia ( <i>Oreochromis</i> spp.)	New	0304.29*	0304.61
-- Catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.)	New	0304.29*	0304.62
-- Nile Perch ( <i>Lates Niloticus</i> )	New	0304.29*	0304.63
-- Other	New	0304.29*	0304.69
- Frozen fillets of families <i>Bregmacerotidae</i> , <i>Euclichthyidae</i> , <i>Gadidae</i> , <i>Macrouridae</i> , <i>Melanonidae</i> , <i>Merlucciidae</i> , <i>Moridae</i> and <i>Muraenolepididae</i> :	New	0304.29*	
-- Cod ( <i>Gadus morhua</i> , <i>Gadus ogac</i> , <i>Gadus macrocephalus</i> )	New	0304.29*	0304.71
-- Haddock ( <i>Melanogrammus aeglefinus</i> )	New	0304.29*	0304.72
-- Coalfish ( <i>Pollachius virens</i> )	New	0304.29*	0303.73
-- Hake ( <i>Merluccius</i> spp., <i>Urophycis</i> spp.)	New	0304.29*	0304.74
-- Alaska Pollack ( <i>Theragra chalcogramma</i> )	New	0304.29*	0304.75
-- Other	New	0304.29*	0304.79
- Frozen fillets of other fish :	New	0304.29*	
-- Pacific salmon ( <i>Oncorhynchus nerka</i> , <i>Oncorhynchus gorbuscha</i> , <i>Oncorhynchus keta</i> , <i>Oncorhynchus tshawytscha</i> , <i>Oncorhynchus kisutch</i> , <i>Oncorhynchus masou</i> and <i>Oncorhynchus rhodurus</i> ), Atlantic salmon ( <i>Salmo salar</i> ) and Danube salmon ( <i>Hucho hucho</i> )	New	0304.29*	0304.81
-- Trout ( <i>Salmo trutta</i> , <i>Oncorhynchus mykiss</i> , <i>Oncorhynchus clarki</i> , <i>Oncorhynchus aguabonita</i> , <i>Oncorhynchus gilae</i> , <i>Oncorhynchus apache</i> and <i>Oncorhynchus chrysogaster</i> )	New	0304.29*	0304.82
-- Flatfish ( <i>Pleuronectidae</i> , <i>Bothidae</i> , <i>Cynoglossidae</i> , <i>Soleidae</i> , <i>Scophthalmidae</i> and <i>Citharidae</i> )	New	0304.29*	0304.83
-- Swordfish ( <i>Xiphias gladius</i> )	Recoded	0304.21	0304.84
-- Toothfish ( <i>Dissostichus</i> spp.)	Recoded	0304.22	0304.85

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
-- Herrings ( <i>Clupea harengus</i> , <i>Clupea pallasii</i> )	New	0304.29*	0304.86
-- Tunas (of the genus <i>Thunnus</i> ), skipjack or stripe-bellied bonito ( <i>Euthynnus (Katsuwonus) pelamis</i> )	New	0304.29*	0304.87
-- Other	New	0304.29*	0304.89
- Other :	=		
-- Swordfish ( <i>Xiphias gladius</i> )	=	0304.91	0304.91
-- Toothfish ( <i>Dissostichus</i> spp.)	=	0304.92	0304.92
-- Tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.)	New	0304.99*	0304.93
-- Alaska Pollack ( <i>Theraga chalcogramma</i> )	New	0304.99*	0304.94
-- Fish of the families <i>Bregmacerotidae</i> , <i>Euclichthyidae</i> , <i>Gadidae</i> , <i>Macrouridae</i> , <i>Melanonidae</i> , <i>Merlucciidae</i> , <i>Moridae</i> and <i>Muraenolepididae</i> , other than Alaska Pollack ( <i>Theraga chalcogramma</i> )	New	0304.99*	0304.95
-- Other	=	0304.99	0304.99
<b>Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption.</b>	=	<b>03.05</b>	<b>03.05</b>
- Flours, meals and pellets of fish, fit for human consumption	=	0305.10	0305.10
- Livers and roes of fish, dried, smoked, salted or in brine	=	0305.20	0305.20
- Fish fillets, dried, salted or in brine, but not smoked :	New	0305.30*	
-- Tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.)	New	0305.30*	0305.31
-- Fish of the families <i>Bregmacerotidae</i> , <i>Euclichthyidae</i> , <i>Gadidae</i> , <i>Macrouridae</i> , <i>Melanonidae</i> , <i>Merlucciidae</i> , <i>Moridae</i> and <i>Muraenolepididae</i>	New	0305.30*	0305.32
-- Other	New	0305.30*	0305.39
- Smoked fish, including fillets :	=		
-- Pacific salmon ( <i>Oncorhynchus nerka</i> , <i>Oncorhynchus gorbuscha</i> , <i>Oncorhynchus keta</i> , <i>Oncorhynchus tshawytscha</i> , <i>Oncorhynchus kisutch</i> , <i>Oncorhynchus masou</i> and <i>Oncorhynchus rhodurus</i> ), Atlantic salmon ( <i>Salmo salar</i> ) and Danube salmon ( <i>Hucho hucho</i> )	=	0305.41	0305.41
-- Herrings ( <i>Clupea harengus</i> , <i>Clupea pallasii</i> )	=	0305.42	0305.42
-- Trout ( <i>Salmo trutta</i> , <i>Oncorhynchus mykiss</i> , <i>Oncorhynchus clarki</i> , <i>Oncorhynchus aguabonita</i> , <i>Oncorhynchus gilae</i> , <i>Oncorhynchus apache</i> and <i>Oncorhynchus chrysogaster</i> )	New	0305.49*	0305.43
-- Tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.)	New	0305.49*	0305.44
-- Other	=	0305.49	0305.49
- Dried fish, other than edible fish offal, whether or not salted but not smoked :	=		
-- Cod ( <i>Gadus morhua</i> , <i>Gadus ogac</i> , <i>Gadus macrocephalus</i> )	=	0305.51	0305.51
-- Other	=	0305.59	0305.59
- Fish, salted but not dried or smoked and fish in brine, other than edible fish offal :	Text revised (add. offal)		
-- Herrings ( <i>Clupea harengus</i> , <i>Clupea pallasii</i> )	=	0305.61	0305.61
-- Cod ( <i>Gadus morhua</i> , <i>Gadus ogac</i> , <i>Gadus macrocephalus</i> )	=	0305.62	0305.62

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
-- Anchovies ( <i>Engraulis</i> spp.)	=	0305.63	0305.63
-- Tilapias ( <i>Oreochromis</i> spp.), catfish ( <i>Pangasius</i> spp., <i>Silurus</i> spp., <i>Clarias</i> spp., <i>Ictalurus</i> spp.), carp ( <i>Cyprinus carpio</i> , <i>Carassius carassius</i> , <i>Ctenopharyngodon idellus</i> , <i>Hypophthalmichthys</i> spp., <i>Cirrhinus</i> spp., <i>Mylopharyngodon piceus</i> ), eels ( <i>Anguilla</i> spp.), Nile perch ( <i>Lates niloticus</i> ) and snakeheads ( <i>Channa</i> spp.)	New	0305.69*	0305.64
-- Other	=	0305.69	0305.69
- Fish fins, heads, tails, maws and other edible fish offal :	New	0305.51*/69*	
-- Shark fins	New	0305.51*/69*	0305.71
-- Fish heads, tails and maws	New	0305.51*/69*	0305.72
-- Other	New	0305.51*/69*	0305.79
<b>Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked crustaceans, whether in shell or not, whether or not cooked before or during the smoking process; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets of crustaceans, fit for human consumption.</b>	<b>Added smoked</b>	<b>03.06</b>	<b>03.06</b>
- Frozen :	=		
-- Rock lobster and other sea crawfish ( <i>Palinurus</i> spp., <i>Panulirus</i> spp., <i>Jasus</i> spp.)	=	0306.11	0306.11
-- Lobsters ( <i>Homarus</i> spp.)	=	0306.12	0306.12
	Deleted/split	[0306.13]	[0306.13]
-- Crabs	=	0306.14	0306.14
-- Norway lobsters ( <i>Nephrops norvegicus</i> )	New	0306.19*	0306.15
-- Coldwater shrimps and prawns ( <i>Pandalus</i> spp., <i>Crangon crangon</i> )	New/split	0306.13*	0306.16
-- Other shrimps and prawns	New/split	0306.13*	0306.17
-- Other, including flours, meals and pellets of crustaceans, fit for human consumption	=	0306.19	0306.19
- Other :	=		
-- Rock lobster and other sea crawfish ( <i>Palinurus</i> spp., <i>Panulirus</i> spp., <i>Jasus</i> spp.)	=	0306.21	0306.21
-- Lobsters ( <i>Homarus</i> spp.)	=	0306.22	0306.22
	Deleted/split	[0306.23]	[0306.23]
-- Crabs	=	0306.24*	0306.24
-- Norway lobsters ( <i>Nephrops norvegicus</i> )	New	0306.29*	0306.25
-- Coldwater shrimps and prawns ( <i>Pandalus</i> spp., <i>Crangon crangon</i> )	New/split	0306.23*	0306.26
-- Other shrimps and prawns	New/split	0306.23*	0306.27
-- Other, including flours, meals and pellets of crustaceans, fit for human consumption	New/split	0306.29	0306.29
<b>Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; smoked molluscs, whether in shell or not, whether or not cooked before or during the smoking process; flours, meals and pellets of molluscs, fit for human consumption</b>	<b>Added smoked/removed aquatic invertebrates</b>	<b>0307*</b>	<b>0307</b>
- Oysters :	New/split	0307.10	
-- Live, fresh or chilled	New/split	0307.10*	0307.11
-- Other	New/split	0307.10*	0307.19
- Scallops, including queen scallops, of the genera <i>Pecten</i> , <i>Chlamys</i> or <i>Placopecten</i> :	=		
-- Live, fresh or chilled	=	0307.21	0307.21
-- Other	=	0307.29	0307.29

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
- Mussels ( <i>Mytilus</i> spp., <i>Perna</i> spp.) :	=		
-- Live, fresh or chilled	=	0307.31	0307.31
-- Other	=	0307.39	0307.39
- Cuttle fish ( <i>Sepia officinalis</i> , <i>Rossia macrosoma</i> , <i>Sepioloa</i> spp.) and squid ( <i>Ommastrephes</i> spp., <i>Loligo</i> spp., <i>Nototodar</i> spp., <i>Sepioteuthis</i> spp.) :	=		
-- Live, fresh or chilled	=	0307.41	0307.41
-- Other	=	0307.49	0307.49
- Octopus ( <i>Octopus</i> spp.) :	=		
-- Live, fresh or chilled	=	0307.51	0307.51
-- Other	=	0307.59	0307.59
- Snails, other than sea snails	=	0307.60	0307.60
- Clams, cockles and arkshells (families <i>Arcidae</i> , <i>Arctidae</i> , <i>Cardiidae</i> , <i>Donacidae</i> , <i>Hiattellidae</i> , <i>Mactridae</i> , <i>Mesodesmatidae</i> , <i>Myidae</i> , <i>Semelidae</i> , <i>Solecurtidae</i> , <i>Solenidae</i> , <i>Tridacnidae</i> and <i>Veneridae</i> ) :	New	0307.91*/.99*	
-- Live, fresh or chilled	New	0307.91*	0307.71
-- Other	New	0307.99*	0307.79
- Abalone ( <i>Haliotis</i> spp.) :	New	0307.91*/.99*	
-- Live, fresh or chilled	New	0307.91*	0307.81
-- Other	New	0307.99*	0307.89
- Other including flours, meals and pellets fit for human consumption :	Split (exclusion of aq. invert)	0307.91*/.99*	
-- Live, fresh or chilled	Split (exclusion of aq. invert)	0307.91*	0307.91
-- Other	Split (exclusion of aq. invert)	0307.99*	0307.99
<b>Aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine; smoked aquatic invertebrates other than crustaceans and molluscs, whether or not cooked before or during the smoking process; flours, meals and pellets of aquatic invertebrates other than crustaceans and molluscs, fit for human consumption.</b>	<b>New</b>	<b>0307.91*/.99*</b>	<b>0308</b>
- Sea cucumbers ( <i>Stichopus japonicus</i> , <i>Holothurioidea</i> ) :	New	0307.91*/.99*	
-- Live, fresh or chilled	New	0307.91*	0308.11
-- Other	New	0307.99*	0308.19
- Sea urchins ( <i>Strongylocentrotus</i> spp., <i>Paracentrotus lividus</i> , <i>Loxechinus albus</i> , <i>Echichinus esculentus</i> ) :	New	0307.91*/.99*	
-- Live, fresh or chilled	New	0307.91*	0308.21
-- Other	New	0307.99*	0308.29
- Jellyfish ( <i>Rhopilema</i> spp.)	New	0307.91*/.99*	0308.30
- Other	New	0307.91*/.99*	0308.90
(...)			
<b>CHAPTER 5- PRODUCTS OF ANIMAL ORIGIN, NOT ELSEWHERE SPECIFIED OR INCLUDED</b>		<b>05</b>	<b>05</b>
(...)			
<b>Coral and similar materials, unworked or simply prepared but not otherwise worked echinoderms and cuttle-bone, unworked or simply prepared but not cut to shape, powder and waste thereof.</b>	<b>=</b>	<b>05.08</b>	<b>05.08</b>
- Coral and similar materials, unworked or simply prepared but not otherwise worked echinoderms and cuttle-bone, unworked or simply prepared but not cut to shape, powder and waste thereof	=	0508.00	0508.00
(...)			
<b>SECTION II- VEGETABLE PRODUCTS</b>		<b>II</b>	<b>II</b>

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
(...)			
<b>CHAPTER 12- OIL SEEDS AND OLEAGINOUS FRUITS; MISCELLANEOUS GRAINS, SEEDS AND FRUIT; INDUSTRIAL OR MEDICINAL PLANTS; STRAW AND FODDER</b>		12	12
(...)			
Locust beans, seaweeds and other algae, sugar beet and sugar cane, fresh, chilled, frozen or dried, whether or not ground fruit stones and kernels and other vegetable products (including unroasted chicory roots of the variety <i>Cichorium intybus sativum</i> ) of a kind used primarily for human consumption, not elsewhere specified or included.		12.12	12.12
(...)			
- Seaweeds and other algae :	New/split	1212.20*	
-- Fit for human consumption	New/split	1212.20*	1212.21
-- Other	New/split	1212.20*	1212.29
(...)			
<b>CHAPTER 13- LAC; GUMS, RESINS AND OTHER VEGETABLE SAPS AND EXTRACTS.</b>		13	13
(...)			
Vegetable saps and extracts; pectic substances, pectinates and pectates; agar-agar and other mucilages and thickeners, whether or not modified, derived from vegetable products.		13.02	13.02
(...)			
- Mucilages and thickeners, whether or not modified, derived from vegetable products :			
-- Agar-agar	=	1302.31	1302.31
-- Mucilages and thickeners, whether or not modified, derived from locust beans, locust bean seeds or guar seeds		1302.32	1302.32
-- Other		1302.39	1302.39
(...)			
<b>SECTION III- ANIMAL OR VEGETABLE FATS AND OILS AND THEIR CLEAVAGE PRODUCTS; PREPARED EDIBLE FATS; ANIMAL OR VEGETABLE WAXES</b>		III	III
<b>CHAPTER 15- ANIMAL OR VEGETABLE FATS AND OILS AND THEIR CLEAVAGE PRODUCTS; PREPARED EDIBLE FATS; ANIMAL OR VEGETABLE WAXES</b>		15	15
(...)			
Fats and oils and their fractions, of fish or marine mammals, whether or not refined, but not chemically modified.	=	15.04	15.04
- Fish-liver oils and their fractions	=	1504.10	1504.10
- Fats and oils and their fractions, of fish, other than liver oils	=	1504.20	1504.20
- Fats and oils and their fractions, of marine mammals	=	1504.30	1504.30
(...)			
<b>SECTION IV- PREPARED FOODSTUFFS; BEVERAGES, SPIRITS AND VINEGAR; TOBACCO AND MANUFACTURED TOBACCO SUBSTITUTES</b>		IV	IV
<b>CHAPTER 16- PREPARATIONS OF MEAT, OF FISH OR OF CRUSTACEANS, MOLLUSCS OR OTHER AQUATIC INVERTEBRATES</b>		16	16
(...)			
Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs.	=	16.04	16.04
- Fish, whole or in pieces, but not minced :	=		
-- Salmon	=	1604.11	1604.11

Description	Comparison HS2007	HS 2007 (Current)	HS 2012
-- Herrings	=	1604.12	1604.12
-- Sardines, sardinella and brisling or sprats	=	1604.13	1604.13
-- Tunas, skipjack and bonito ( <i>Sarda</i> spp.)	=	1604.14	1604.14
-- Mackerel	=	1604.15	1604.15
-- Anchovies	=	1604.16	1604.16
-- Eels	New	1604.19*	1604.17
-- Other	=	1604.19	1604.19
- Other prepared or preserved fish	=	1604.20	
- Caviar and caviar substitutes :	New/split	1604.30*	
-- Caviar	New/split	1604.30*	1604.31
-- Caviar substitutes	New/split	1604.30*	1604.32
Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved.	=	16.05	16.05
- Crab	=	1605.10	1605.10
- Shrimps and prawns :	New/split	1605.20	
-- not in airtight container	New/split	1605.20*	1605.21
-- other	New/split	1605.20*	1605.29
- Lobster	=	1605.30	1605.30
- Other crustaceans	=	1605.40	1605.40
- Molluscs :	New	1605.90*	
-- Oysters	New	1605.90*	1605.51
-- Scallops, including queen scallops	New	1605.90*	1605.52
-- Mussels	New	1605.90*	1605.53
-- Cuttle fish and squid	New	1605.90*	1605.54
-- Octopus	New	1605.90*	1605.55
-- Clams, cockles and arkshells	New	1605.90*	1605.56
-- Abalone	New	1605.90*	1605.57
-- Snails, other than sea snails	New	1605.90*	1605.58
--Other	New	1605.90*	1605.59
- Other aquatic invertebrates :	New	1605.90*	
-- Sea cucumbers	New	1605.90*	1605.61
-- Sea urchins	New	1605.90*	1605.62
-- Jellyfish	New	1605.90*	1605.63
-- Other	New	1605.90*	1605.69
	Deleted/split	[1605.90]	[1605.90]
(...)			
<b>CHAPTER 23- RESIDUES AND WASTE FROM THE FOOD INDUSTRIES; PREPARED ANIMAL FODDER</b>		<b>23</b>	<b>23</b>
<b>Flours, meals and pellets, of meat or meat offal, of fish or of crustaceans, molluscs or other aquatic invertebrates, unfit for human consumption; greaves</b>		<b>23.01</b>	<b>23.01</b>
- Flours, meals and pellets, of meat or meat offal: greaves		2301.10	2301.10
- Flours, meals and pellets, of fish or of crustaceans, molluscs or other aquatic invertebrates	=	2301.20	2301.20
(...)			

**Legenda:**

(...): Non fish and fishery codes, not shown;

[ ]: Deleted/recoded or split code;

=: No change respect to HS2007;

\*: Part of .

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## Appendix 3. FAO/ICES DEFINITION AND CLASSIFICATION OF FISHING GEAR CATEGORIES

Draft 11 November 2009

### 1. Surrounding nets

Surrounding nets are designed to surround pelagic fish from the sides and underneath, thus preventing them from escaping horizontally or vertically downwards. The net is framed by ropes or lines, with a floatline attached along the upper edge of the net and a weighted line along the lower edge of the net. The netting is generally made of small mesh so that the fish do not become enmeshed and difficult to remove. Apart from a few exceptions, these nets are fished at the surface with the floatline supported by numerous floats.

A purse-seine is a type of surrounding net designed to encircle schools of fish located near the surface. This gear is characterized by the use of a wire (purseline) threaded through purse rings spaced along the lower edge of the net. The purseline is drawn tight (similar to the action of pulling the strings of a purse) to close the net and prevent fish from escaping horizontally or vertically downwards. The net is made by joining together netting panels to form a wall of netting. A floatline which is longer than the purseline is attached to the upper edge of the net. A purse-seine, which may be very large, is usually operated by one boat although two boats can be used. A surrounding net may also be operated without a purseline.

#### 1.1. One boat purse-seines

This category describes a purse-seine operated by a single boat, with or without an auxiliary skiff. The strongest panel of the net, the bunt, is where the catch is concentrated and is usually placed at one end of the purse-seine. Handling of the net may be mechanized, e.g. by a hydraulic powerblock or netdrum.

#### 1.2. Two-boat purse-seines

This category describes a purse-seine operated by two boats, each one setting and retrieving one half of the net. The bunt is usually placed in the centre of the purse-seine.

#### 1.3. Surrounding nets without purseline

This net is designed to surround fish at the surface or in shallow water, without using a purseline. The footrope of the net is much shorter than the floatline to prevent fish from escaping vertically downwards. The gear can be operated by one or two boats. Ringnets and lampara nets fall into this category. The lampara net is the most representative type of surrounding net without purseline. Its particular design, with a central bunt and two lateral wings, makes it possible to surround the fish when the wings are hauled simultaneously. Lampara nets are often used at night with a light to attract and concentrate small pelagics so they can be surrounded by the net.

## 2. SEINES

Seines consist of a net with long wings and a bunt for retaining fish or other species. The wings are often lengthened with long ropes or warps to herd fish and haul the net. The bunt is usually in the centre of the net and may consist of a netting bag or loose netting. The mesh size in the bunt mainly determines the size of animals caught. The net is usually framed with a floatline along the upper edge and a weighted line along the lower edge of the net. This gear may be operated from the shore (beach-seine) or from a boat (boat-seine).

### 2.1. Beach-seines

A beach-seine is designed to encircle an area of seabed in shallow water. The seine may be set from a boat or by hand (wading) and then hauled to the shore. The surface and bottom act as natural barriers, which prevent the catch from escaping from the area enclosed by the net.

### 2.2. Boat-seines

A boat-seine is composed of a cone-shaped net with a central bunt and two long, heavy ropes extending from the wings of the net. The ropes and net are set out by a boat in the following sequence – rope, net, rope - to surround an area of seabed of approximately triangular shape. The boat hauls both ropes simultaneously, using capstans or winches, when stationary at anchor (Danish seining) or when steaming slowly forward (Scottish seining). The hauling speed is increased gradually up to a maximum of about  $1 \text{ m s}^{-1}$ . During the fishing operation, the species encountering the gear are herded into the path of the net by the ropes. The size of the fished area is determined mainly by the rope lengths. The boat-seine is most commonly used on the bottom but may also be used pelagically. When fished by two boats, a boat-seine is known as a pair-seine. In some areas the pair-seining method has evolved so that it is similar to bottom pairtrawling which is described in Section 3.5.

## 3. TRAWLS

A trawl can be towed through the water by one or two boats, in full contact with the bottom (demersal), in midwater (pelagic), or in close proximity to the bottom (semi-pelagic). The main component is the trawlnet, a cone-shaped body of netting, closed at the aft end by a codend. A trawl is used to catch fish, crustaceans, cephalopods, or bivalves by towing it steadily. The minimum necessary towing speed is mainly dependent on the behaviour and swimming capacity of the target species. As the fish become exhausted, they fall back and are retained by smaller meshes in the aft trawl sections and codend.

A bottom trawl is designed to catch species living on or near the bottom. Components of the trawl have contact with the bottom while fishing and are designed to withstand this interaction with minimum damage. The horizontal opening of the netmouth is maintained by a beam (beamtrawl), by otterboards

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(ottertrawl), or by two boats (pairtrawl). Floats or kites, weights, or a rigid frame produce the vertical opening of the trawl net. Two or more trawl nets may be rigged in parallel between the otterboards (twintrawl or multiple trawl). Bottom trawls can be towed from near the stern or from outriggers. The mesh size in the codend is the main factor determining the size of animal to be captured although other characteristics of codend design such as mesh shape, twine size, and hanging ratio are known to affect size selectivity. Specially designed devices such as grids can be installed in the trawl net or codend to select by size or by species. The towing speed of bottom ottertrawls or pairtrawls is generally between 1 and 2 m s<sup>-1</sup> while that of beamtrawls is up to 3.5 m s<sup>-1</sup> for the most powerful boats.

A midwater (or pelagic) trawl is designed to catch pelagic or semi-demersal fish or crustaceans that are located off the bottom. The fish are often shoaling species and the catch rates therefore are high. Generally no component of a midwater trawl is intended to have contact with the bottom while fishing. Towing speed is usually in the range from 1 to 2 m s<sup>-1</sup> but can be up to 3 m s<sup>-1</sup> for faster swimming species. Midwater trawl nets are usually much larger than bottom trawl nets and, in the front section, are sometimes constructed using very large meshes or ropes which herd the fish. The vertical opening of a midwater trawl is generally maintained by weights attached at the lower wingends. The codend, which is usually not size selective, may be designed to hold a large catch, by adding circumferential strengthening ropes to prevent it from bursting when the fish reach the surface. In order to intercept a shoal, the fishing depth of the net is generally monitored by means of a net sounder (netsonde) or a depth recorder. The depth of the net is controlled by the towing speed and amount of wire paid out. Midwater trawls may be towed by one or two boats.

A semi-pelagic trawl is designed to catch fish or crustaceans which are near the bottom but generally out of reach of conventional bottom trawls. Some components of the trawl are designed to make contact with the bottom.

### 3.1. Beamtrawls

A beamtrawl has a rigid beam across the netmouth which maintains the horizontal opening of the net. This gear generally targets demersal species such as flatfish and shrimp. Only those species in the path of the netmouth are caught. The beam is commonly made of wood or metal, and may be of any length that can be handled practically onboard the towing boat. The beam is held above the bottom by heavy 'shoes' at each end which run along the bottom and to which the towing wires are attached. The netmouth is below the beam. One beamtrawl can be towed from the stern or alternatively two beamtrawls from outriggers. Consistent bottom contact is necessary for successful operation and is often achieved by heavy chains attached between the shoe sole plates.

### 3.2. Single bottom ottertrawls

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A single bottom ottertrawl comprises a single trawl net operated from one boat. The horizontal opening of the net is generated by two otterboards (trawl doors). The net is held open vertically by floats along the upper leading edge of the net or simply by the height of the otterboards, while ground contact is maintained by a weighted groundrope which also protects the net from damage. Depending on the species, fish may be herded into the path of the net by the otterboards and by the wires connecting them to the net. Therefore the area fished can be greater than the area swept by the netmouth.

### 3.3. Twin bottom ottertrawls

A twin bottom ottertrawl is towed on the bottom by one boat and comprises two trawl nets, each rigged between a central weight or sled (sledge) and one of the two otterboards. Wires between the otterboards/weight and the nets can herd some species into the path of the nets. A twin trawl is towed by three towing warps or by two warps using a bridle arrangement.

### 3.4. Multiple bottom ottertrawls

A multiple bottom ottertrawl is towed by one boat and comprises more than two trawl nets, which are rigged between two or more otterboards and weights or sleds (sledges). This design increases the swept area and catch rate of non-herded species, such as shrimp and other crustaceans. A triple-rig trawl system typically uses two otterboards and two weights between which the three nets are opened horizontally. Four nets may be towed simultaneously using additional otterboards or with outriggers supporting 2 nets each side (quad-rig system). In some fisheries up to eight nets may be towed simultaneously.

### 3.5. Bottom pairtrawls

A bottom pairtrawl is towed by two boats, which maintain the horizontal opening of the net during fishing on the bottom. The design of the trawl net is similar to a bottom ottertrawl net, but the net is built large enough to match the higher engine power available from the two boats. Long warps are sometimes used as sweeps in front of the wings to increase the area fished by the trawl and hence the catch rate. A bottom pair-seine is a similar gear design, operated in a similar way except that heavier sweep wires may be used.

### 3.6. Single-boat midwater trawls

A single-boat midwater trawl is towed by a single boat, using otterboards, beams, or frames to open the trawl horizontally. Midwater otterboards are normally designed with higher hydrodynamic efficiency than bottom otterboards. Midwater trawls may also be rigged with four otterboards, one attached to each wingend. Frame- or beam-supported midwater trawls (without otterboards) are used to catch smaller marine organisms such as zooplankton or fish larvae, e.g. for scientific studies.

### 3.7. Midwater pairtrawls

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A midwater pairtrawl is towed by two boats, whose distance apart regulates the horizontal opening of the net. Midwater pairtrawls may be rigged with two towing warps from each boat or alternatively with one towing warp from each boat and a bridle arrangement. Midwater pairtrawls are particularly efficient at catching fish close to the sea surface.

### 3.8. Semi-pelagic trawls

Originally semi-pelagic trawls were designed with otterboards in contact with the bottom but with the net floated above the bottom to catch species, such as herring, swimming out of reach of conventional bottom trawls. Alternatively a semi-pelagic trawl may feature a bottom trawl net with midwater doors which do not contact the bottom, as used for example in redfish, shrimp, and pollock fisheries. An additional benefit of these designs is the reduced impact on the bottom.

A versatile gear which can be operated in midwater or on the bottom with little or no change in rigging, for catching species which vary their distance from the bottom over time, e.g. diurnally, is also often referred to as a semi-pelagic trawl.

## 4. DREDGES

A dredge is used to catch bivalves or other species that dwell in or on the seabed and comprises a net or metal basket mounted on a towing frame. The lower part of the net or frame may have a scraper blade, sometimes toothed, to lift the animals into the net. Dredges may be operated by hand or from a boat. Complex mechanized systems use hydraulic equipment (water jets) to dislodge the target species from the seabed. Common targets are mussels, oysters, scallops, clams, and other molluscs. Some dredge designs are also used to capture flatfish (Rapido trawls).

### 4.1. Towed boat dredges

These dredges are towed by a boat across the seabed and may comprise either a single or double dredge or a series of small dredges attached to a single horizontal towing bar. Each dredge has a robust metal frame, with or without teeth along the lower edge of the scraper bar, to which is attached a bag constructed with interlocking metal rings and/or netting. Common targets are clams, oysters, and scallops. Depending on the size of the boat and the depths fished, the number of dredges may vary from a single dredge towed behind the boat to up to 10 dredges per bar. The towing bar is attached by bridles to a single towing warp connected to the boat. With outriggers, two bars may be deployed, one each side of the boat, with several dredges on each bar.

### 4.2. Mechanized boat dredges

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A mechanized boat dredge has a large metal cage equipped with a cutting blade and uses high-pressure hydraulic jet pumps to wash out bivalves, such as mussels and clams, from the seabed sediment. The shellfish are scooped up by the dredge located behind the jets and may be passed onto a conveyor belt which brings them on board for sorting. The entire system is attached to the boat. During the operation the boat sets an anchor and by hauling the anchor line, the boat can manoeuvre. Several sectors around the anchor position may be fished.

#### 4.3. Hand dredges

A hand dredge is a small light dredge, operated by hand in shallow waters. It can be operated by wading from the shore or from a small boat.

## 5. LIFTNETS

A liftnet consists of a piece of netting which is lifted or hauled vertically to collect fish, crustaceans, or other species accumulated above the net before hauling commences. The netting is either a simple horizontal sheet or a bag-shaped netting panel, like a pyramid or cone with the opening facing upwards. The catch is attracted over the net by light or bait or drifts over the net by action of the current prior to the lifting process. The net may be operated by hand, from a boat or from the shore.

#### 5.1. Portable hand liftnets

A portable hand liftnet is a small liftnet operated by hand, often supported by a frame.

#### 5.2. Boat-operated liftnets

A boat-operated liftnet is a liftnet operated from one or more boats. These gears include bagnets ('basnig') and blanket nets. The fishing operation may include the use of light (different colours) to attract and/or scare the fish.

#### 5.3. Stationary liftnets

A stationary liftnet is a liftnet usually operated from a stationary installation (platform) situated along the shore or river bank, or over shallow water. The lifting system can be manually operated or, if larger, mechanized.

## 6. FALLING GEAR

Falling gear catch fish, crustaceans, or other species by falling from above and closing over them. Their use is usually restricted to shallow waters.

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### 6.1. Castnets

A castnet is a cone-shaped net with weights attached around the perimeter and is operated from the shore or boat. The net is thrown by hand (cast) flat over the water surface and then sinks quickly to enclose the catch. As the net is hauled the extra mesh forms pockets that prevent the fish from escaping. A line attached to the apex of the cone is used to assist casting and retrieval and release of the catch from the net.

### 6.2. Cover pots/lantern nets

Cover pots and lantern nets generally consist of netting or other material covering a rigid frame that is brought down quickly over the catch to prevent escape. The gear is generally hand-operated by fishers wading in very shallow waters and the catch, often a single individual, is usually retrieved by hand through an opening in the top of the gear.

## 7. GILLNETS AND ENTANGLING NETS

Gillnets and entangling nets are single, double, or triple walls of netting, kept more or less vertical by floats on the upper line and by weights on the groundline. The groundline may or may not be in contact with the bottom depending on the target species. Fish and other species may be gilled, entangled, or enmeshed in the netting. These nets can be used either alone or, more usually, in large numbers joined together in line ('fleets' of nets). Depending on their design, rigging, ballasting, and floatation, they may be used to fish in surface layers, in midwater, or at the bottom. They may be anchored or allowed to drift freely. Several types of net may be combined in one gear (for example, trammelnet combined with gillnet).

### 7.1. Set gillnets

A set gillnet consists of a single wall of netting held approximately vertically in the water by a floatline and a weighted groundline, set on the bottom or at a certain distance above it, and kept stationary by anchors or weights at one or both ends. The dominant method of capture is by gilling, although some fish may be entangled. The size distribution of the catch is very much dependent on the mesh size and rigging of the netting used in the gillnet. A framed tanglenet is a variant design comprising a single layer of netting rigged in a similar way to a set gillnet but with vertical connection lines (known as tie-downs or snoods) between the floatline and groundline. These lines are shorter than the stretched height of the netting causing the net to hang with some slack, and improving the chance of entanglement.

### 7.2. Driftnets

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A driftnet is operated on the sea surface, or at a chosen distance below it with appropriate floatation attached to the headline, and allowed to drift freely with the current. Driftnets may consist of a string of gillnets up to 50 km in length. They may drift independently while accompanied by a boat, but generally they are fastened to a boat that drifts with them. The predominant method of capture is by gilling and driftnets are highly size-selective for various fish species.

### 7.3. Encircling gillnets

Encircling gillnets are set around a fish aggregation. Noise or other means is used to force the fish to gill or entangle themselves in the netting. This gear is generally set in shallow water with the floatline on the surface and groundline on the bottom.

### 7.4. Fixed gillnets (on stakes)

This gear is attached to, and stretched between, stakes, usually in coastal waters where there is a significant tidal range. The fish are usually collected at low tide.

### 7.5. Trammelnets

A trammelnet consists of three layers of netting; two outer layers of large-mesh netting and an inner layer of slack small-mesh netting. Fish, crustaceans, or other species entangle themselves in a pocket of small-mesh netting which has been pushed through one of the outer walls of large-mesh netting. This gear is usually set on the bottom.

### 7.6. Combined gillnets-trammelnets

A combined gillnet-trammelnet is a bottom-set net consisting of a gillnet in the upper part to catch semi-demersal or pelagic fish and a trammelnet in the lower part to catch bottom fish.

## 8. TRAPS

**Traps are stationary gears consisting of a chamber into which fish, crustaceans, cephalopods, or bivalves are guided with a herding device or lures, but from which escape is hampered by funnel devices or gorges.**

### 8.1. Stationary uncovered poundnets

A stationary uncovered poundnet is usually a large net divided into one or more chambers, anchored or fixed on stakes and designed to guide fish to a holding chamber (pound or codend). The gear often has a long leader net placed across the path of migrating fish to guide them towards the chambers. The chambers are usually open at the surface and closed at the bottom to prevent fish escape, and they guide

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fish towards the holding chamber. The catch is retrieved by hauling the holding chamber on board one or more boats.

### 8.2. Pots

A pot is a cage or basket with one or more entrances designed to allow the entry of fish, crustaceans, cephalopods, or bivalves and prevent or retard their escape. They are usually set on the bottom, with or without bait, singly or in rows tethered to a single line, and usually connected by rope to a buoy on the surface. They can be hauled by hand or mechanized pot haulers. The term trap is sometimes used to refer to pots that target fish.

### 8.3. Fykenets

A fykenet consists of a cylindrical or cone-shaped netting bag mounted on a ring or other rigid structure. It may have wings or leaders, which guide the fish towards the entrance. Fykenets, fixed on the bottom by anchors, ballast, or stakes, may be used separately or in groups, usually in shallow water in rivers, estuaries, and ponds.

### 8.4. Stownets

These stationary nets, usually in the shape of a cone or pyramid, are fixed by means of anchors or stakes, placed according to the direction and strength of the current, and may be supported by a boat. The opening is usually formed by a simple frame round the net mouth. More complex designs e.g. with wings or with otterboards to allow closure, are known. This gear can be used in rivers, estuaries, or areas with strong currents. The fish or other species, entering more or less voluntarily, are caught by filtering.

### 8.5. Barriers, fences, weirs, corrals, etc.

These gears may be made of various materials (stakes, branches, reeds, netting, etc.), and are usually used in tidal waters, working on the same principle as a poundnet. They generally have a narrow slit (doorway) leading to an enclosed catching chamber. From the doorway, a wall of netting (leader) often extends to the shoreline.

### 8.6. Aerial traps

Aerial traps include boxes, rafts, boats and nets ("verandah nets") that retain fish that have jumped clear of the surface of the water. Fish are sometimes frightened by noise or light to induce them to jump out of the water.

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## 9. HOOKS AND LINES

This category describes gear where fish, squid, or other species are attracted by natural or artificial bait or lure placed on a hook fixed to the end of a line or snood, on which they are caught. Hook-and-line gear may be used with one hook or with large numbers of hooks. This gear also includes the use of hooks or points (jigs) to penetrate the flesh (piercing, ripping or tearing) when the targets pass within range. Depending on species and operational conditions, barbed or barbless hooks can be used.

### 9.1. Handlines and hand-operated pole-and-line fishing

This category describes a vertical line with one or more hooks or jigs operated by hand from a boat or from the shore. Handlining is carried out with one or more baited hooks or unbaited jigs on a single line.

Pole-and-line fishing involves catching fish near the surface with a set length of line attached to a pole of similar length, although in deeper water the line may be operated using a reel. The target species may be “chummed” with live bait fish to attract them towards the boat and additional water spraying used to simulate a feeding frenzy in order to keep the fish near the boat (e.g. tuna pole-and-line fishery). Barbless and unbaited hooks are used. The hooked fish are swung on board and release themselves from the hook when they touch the deck of the vessel.

### 9.2. Mechanized lines and pole-and-line fishing

Mechanized lines comprise a vertical line with one or more hooks (or jigs) attached and operated mechanically using powered reels or drums.

Pole-and-line fishing may also be fully mechanized, with the movement of the pole being entirely automatic. The equipment is usually mounted on a boat, and several units may be used at once. The targets (e.g. squid) may be concentrated by strong light and attracted by jerking movements of coloured lures fitted with one or more circles of barbless hooks. Because of the eccentric-shaped drum, the speed of winding up is alternately slow and fast but continuously upwards.

### 9.3 Set longlines

A set longline consists of a horizontal main line with snoods (gangions) and baited hooks attached at intervals. The gear is set on the bottom or near the bottom (semi-pelagic) and usually anchored at either end of the line with weights. The length of a set longline can range from a few hundred meters in coastal fisheries to more than 50 km in large-scale mechanized fisheries. The gear may be hauled by hand or by powered reels. The baiting of hooks may be manual or by a machine.

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## 9.4 Drifting longlines

A drifting longline consists of a main line with snoods and baited hooks attached at intervals. They may be fished near the surface or in the water column, the depth of the hooks influencing the catch composition. The fishing depth can be regulated by the lengths of the float lines.

## 9.5 Set vertical lines

This gear (sometimes known as a drop line) consists of a line set vertically with one or more hooks attached. A float may be attached to the line at the surface and the line may either be anchored to the bottom by a weight or rigged to drift in the water. Several lines are often deployed in a concentrated area. The lines may be operated manually or mechanically, using powered reels or drums. Trotlines are a variation of this gear and consist of multiple vertical lines, each with one or more hooks attached, connected to a horizontal main line that is anchored at each end with a float on the surface.

## 9.6 Trolling lines

A trolling line consists of a line with a baited hook or lure towed (trolled) near the surface or at a certain depth behind a moving boat. Outrigger poles extending from the sides of the boat may be used to increase the number of lines that can be trolled simultaneously. Tow (or trolling) speed depends on target species. Handling of trolling lines, including removal of fish from the hooks, may be mechanized.

# 10. Other gears

In world fisheries a variety of artisanal or specialized gears exist.

## 10.1. Wrenching gear

Wrenching gear include scythe-like tools for the harvesting of sessile underwater algae by divers, and rakes to scrape floating seaweed stranded along a beach.

## 10.2. Clamps

The simplest form of clamp is a hand-operated stick with one end having at least two branches. The stick may be up to nine meters long. When the catch is sighted, it is jammed between the branches. To provide more grip on the catch, barbs may be used. Clamps are well known in many parts of the world, especially for taking mussels out of the water undamaged. Clamps can also be used for catching fish. In this case stronger implements made of iron, looking like multi-pointed spears, are used.

## 10.3. Rakes

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Rakes may be employed to rake and dig out bivalves, sea urchins, and other species close to the surface of the seabed. To help collect the catch, the teeth may be bent or the rakes equipped with a wire-mesh or netting collection bag.

#### 10.4. Tongs

Tongs consist of a pair of rakes or rake-like baskets (or scoopnets) attached to two long wooden handles, generally joined together like scissors. They are used mainly for collecting mussels, clams, and oysters. The tongs are sometimes mechanized and may differ widely in shape.

#### 10.5. Spears

Spears range from simple pointed hardwood sticks to more complicated many-pronged spears. Spears are usually thrown by hand and can be used from the shore, onboard boats or by divers.

#### 10.6. Harpoons

A harpoon consists of a long pole or shaft with (usually) one sharp point attached to one end. The gear may be thrown manually or fired (shot) from a cannon or gun, and the point is often designed to separate from the shaft of the harpoon when it penetrates an animal. The point may have one or more barbs attached to prevent escape, and each barb may be fixed or moveable (retractable). A line is attached to one end of the pole to help retrieve the prey.

#### 10.7. Electric fishing

Electric fishing uses intermittent electric pulses to stun the fish or otherwise modify its behaviour (e.g. by involuntary muscle contraction) so that it becomes more vulnerable to capture.

#### 10.8. Pushnets

A pushnet consists of a bag-shaped net, with a triangular mouth; two sides are fixed to scissor-like crossed sticks (bamboo or wood). The gear is pushed forward along the bottom in shallow water either by hand or, on a bigger scale, by boat. To help the net glide smoothly over the bottom, the sticks can be provided with runners.

#### 10.9. Scoopnets

A scoopnet is a small net bag, used to scoop or sieve the catch from the water. The net is usually operated by hand, by one or more people. The net may be held open by a metal or wooden frame, with or without handles.

#### 10.10. Drive-in nets

A drive-in net may be a simple rectangular section of netting which is set like a scoop, or a more complex shape like a trawl, with long wings and a bunt or codend. The net may be anchored or staked to the bottom or held in place by boats. These nets retain fish that have been driven into the net by noise or visual stimuli. The prey may also be driven into the net by scaring lines, pulled by two people or with support of boats.

#### 10.11. Pumps

Submersible pumps may be used to harvest dense concentrations of fish, usually small pelagics. They should not be confused with the pumps used to land fish already caught. In most instances this gear is used at night and the fish are attracted to the pump and concentrated by the use of artificial lights.

#### 10.12. Diving

This method involves collection of fish, crustaceans, bivalves or other species by hand without mechanical aid by an individual diving below the water surface. Such diving can be free (with mask and snorkel) or assisted by the use of scuba, surface air delivery or other apparatus.

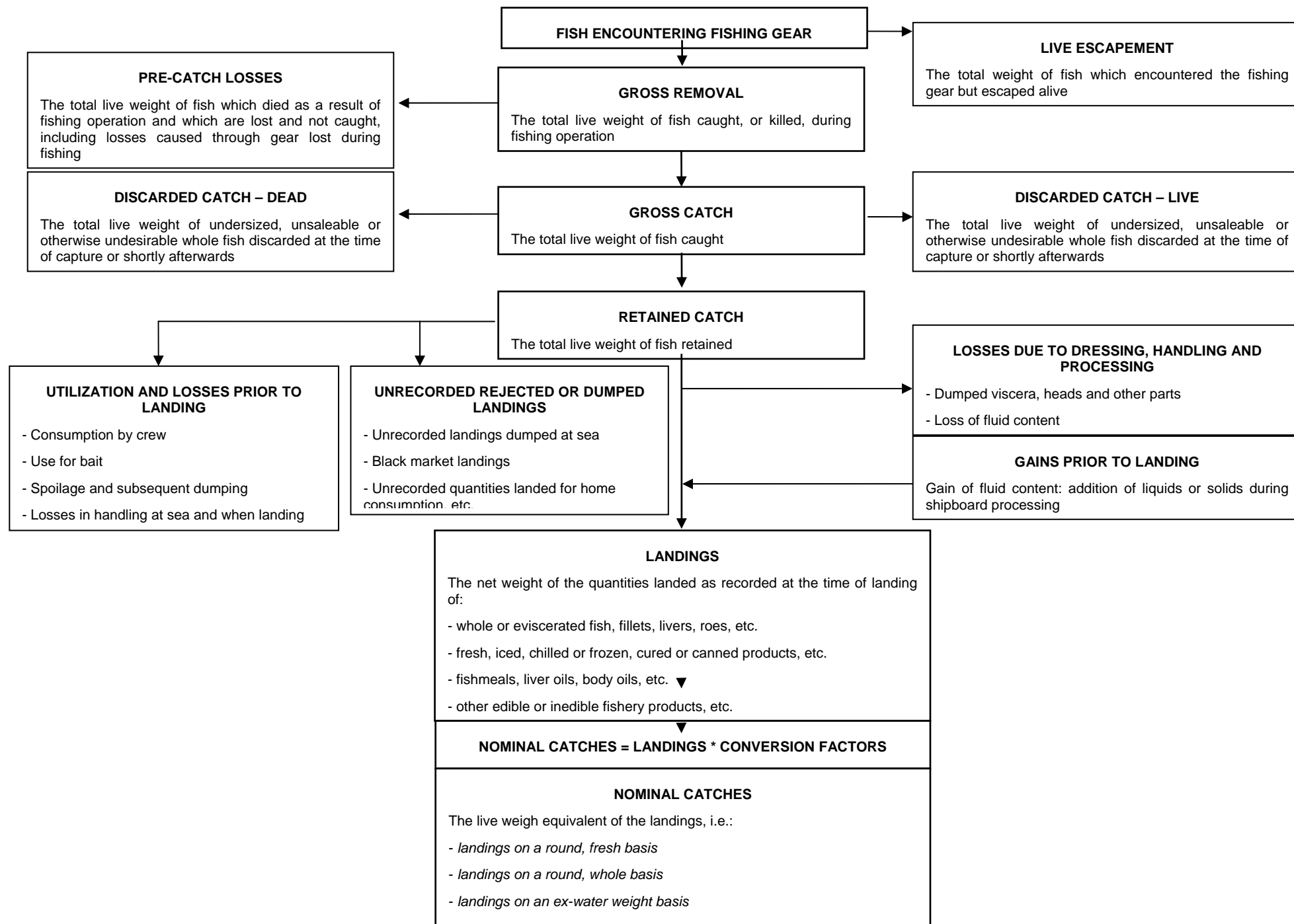
## 20. MISCELLANEOUS

This heading covers any other fishing method which does not fit any of the definitions in sections 1 to 10. Examples might be composite devices such as sweeping trammel nets or use of poisons, explosives, electricity, or trained animals.

## 99. NOT CODED FISHING GEARS

**Appendix 4.**

**CATCH CONCEPTS: DIAGRAMMATIC PRESENTATION**



Appendix 5. Diagram proposed by FAO to the Expert Consultation on International Guidelines for Bycatch Management and Reduction of Discards, in 2009.

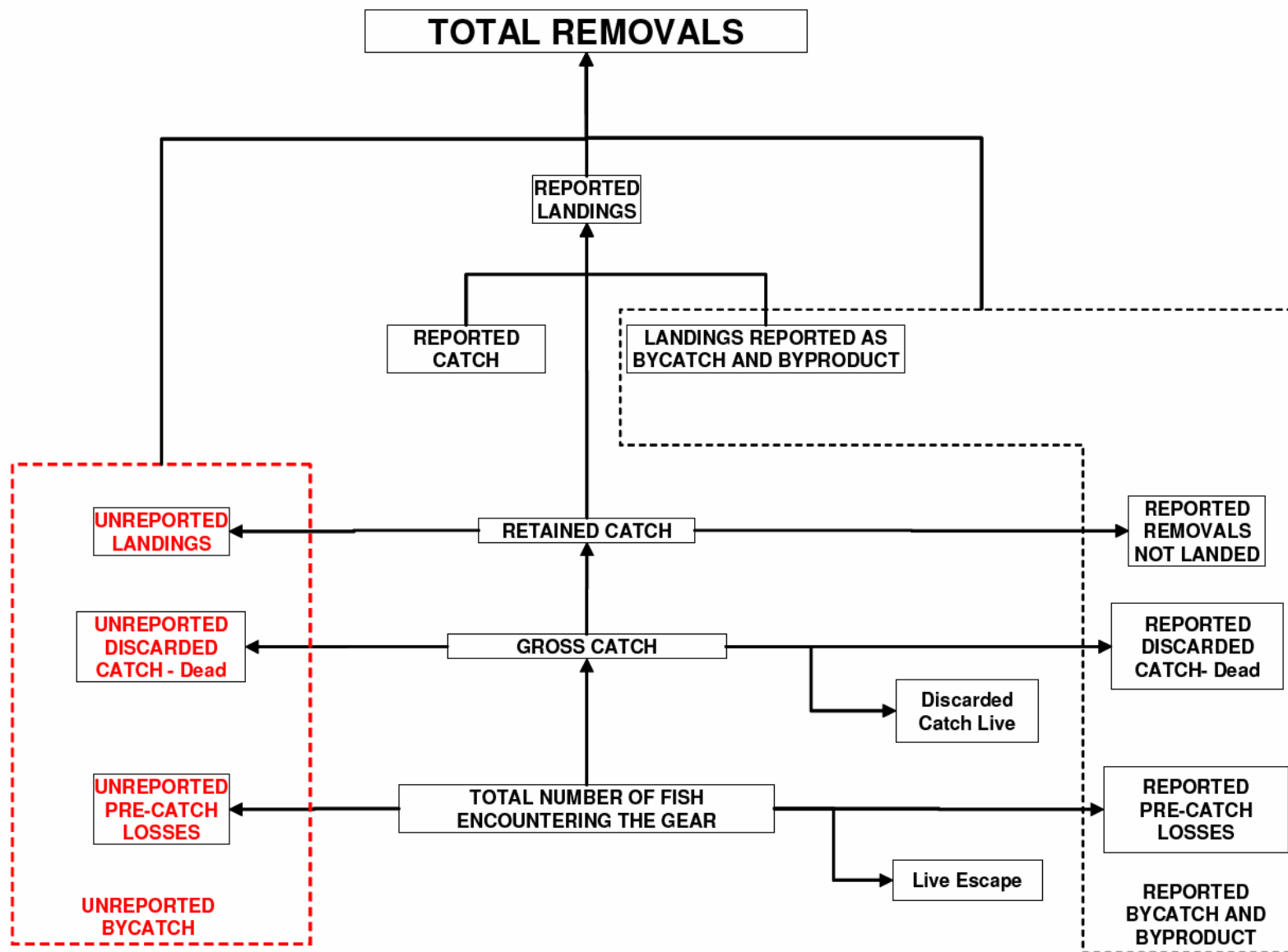


Figure 1. Generalized Catch Concept Model (modified from Annex B.1 Coordinating Working Party on Fishery Statistics Fisheries Statistics Handbook).

