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COORDINATING WORKING PARTY ON FISHERY STATISTICS

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AGENCY REPORT

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Agenda item 6: Inter-sessional Developments in Agency Programmes in Fishery Statistics

1. Modifications since CWP-18

No significant modifications to the FAO fishery statistical programme took place since 1999. Despite a 2 year outposting to Africa of the Senior Officer in charge of statistical development, and turnover of staff which has involved replacement of all fishery statisticians (Capture fisheries, Fisheries commodities, Aquaculture) and some statistical assistants, the delivery of the FAO/FIDI statistical programme has continued. All time series comprising the inquiry have been updated (catch, aquaculture, fleet, fishers, production, trade, regional data). After one-year intermission, the work on the re-casting of relevant primary data as Supply/Utilization Accounts has re-started. Renewed impact to the programme came from the work of the ACFR Working Party on Status and Trend Reporting in Fisheries and by the interest of users in Internet disseminated fishery data. Some of the new work undertaken was accomplished with the help of consultants.

In the intersessional period the following projects have been achieved:

(a) rationalization and expansion of the ASFIS species list
(b) extension back to 1970 of the separation between aquaculture and capture production, including the regional datasets of the Mediterranean and Black Sea and the East Central Atlantic and data allocation to sub-areas or division
(c) preparatory work for the re-organization of catch statistics on a large eco-systems approach
(d) systematization of STATLANT A data in preparation for electronic dissemination of catch data from
    Red Sea and Gulf (1986-1999)
    South-east Atlantic (former area of the ICSEAF) (1975-1999)
(e) inclusion of the Las Palmas survey in the FISHSTAT + dissemination package
(f) collaboration in the preparation of the CWP integrated Atlantic database
(g) publication of the revised Conversion Factors from landed to nominal catch weight
(h) finalization of the trilingual version of STATLANT 21 B "Notes for completion"
(i) finalization of the first draft of a revised CWP Handbook of Fishery Statistics

Improvements on aspects of data processing concentrated on the development of the fishing fleet system as an ORACLE database, and on the migration of capture fisheries and aquaculture databases under the same environment. Two issues of the FAO Yearbook of Fishery Statistics -Aquaculture Production were produced starting from the database located on the Oracle platform. Work for achieving the same output for the Capture Production Yearbook has recently been completed and will be used in 2002. Collaboration with the FIGIS network project in this respect has required shifting some resources and redefining internal priorities.
External resources were essential to achieve improvements of the delivery system to accompany forms despatch and design of electronic forms to report the STATLANT inquiry. Priority is being given to complete the development of electronic forms to report Aquaculture production by species and installation types, and fishery

commodity production and trade. Tangible progress has been achieved in the documentation of international statistical standards, through the revision and completion of the 1990 edition of the CWP Handbook of Fishery Statistics.

Collaboration with CWP agencies has resulted in intensified data exchange with tuna agencies and CCAMLAR, and in the publication of conversion factors with the collaboration of Eurostat.

Little progress however can be reported in improvements to the timeliness of world data set dissemination. This is largely due to the scarce respect of deadlines by national reporters in returning data to FAO despite all efforts for facilitating data submission. Further efforts have been recently done e.g. posting in FTP the FISHSTAT NS-1 questionnaires and intensifying e-mail communication with national reporting offices; it is premature to conclude whether this will have positive result in disseminating the 2000 data set.

Methodological work on concepts and data collection has been achieved through regional workshops and seminars (Workshop on WCA - Aquaculture in Thailand, APCAS on inland fisheries, Glossary of aquaculture terms) and on sampling (ARTFISH and associated packages). At national level the field programme of fishery statistical development has concentrated on Africa (e.g. Angola, Burundi, Mozambique, Congo PDR, Madagascar); two seminars were held in China to identify methodological shortcomings and possibly rectify overestimation of fishery production (UBC paper). There is increasing concern for the loss of reliability of statistics of some Asian large fishery producers, which requires shifting attention to the improvement of data quality in Asia.

2. Main purpose and usage of statistics

FAO fishery data are put to use internally in policy and trend studies, and are also widely used by outside users for global analyses. The array of data collected by FAO on a geographical basis responds to the needs of describing essentially an economic activity contributing to the achievements of national social, economic and nutritional goals. Although data sets are presented also from the point of view of global species and commodities, the geographical structure is paramount. At national level, primary data series of capture and aquaculture production are integrated to processing, utilization and marketing data to describe the flow of commodities to consumers and to derive food availability indicators. It is acknowledged that looked at from this perspective, the economic content of the database should be strengthened to include at least capture production values and a wider array of commodity prices.

3. Catch data structure

FAO catch statistics are essentially the live weight equivalent of retained commercial catches. Although the principles to be followed nationally in reporting are stated in the Notes accompanying the questionnaires, many countries fail to inform when these principles are not applied. In particular the inclusion or exclusion from the total production estimate of the subsistence component, which can be substantial in some developing countries, is often not clear.

No estimate is done by FAO of discards and un-reported catches are not estimated. Collaboration was started with the University of British Columbia, following a joint project in 2000, to be published as a book aimed at decision-makers and others influential in conservation and fisheries. The project made use of the FAO "catches and landings" database and wished to supplement those statistics by providing its own estimates of discards and unreported catches. Although the FAO database was likely to be criticized for giving an inaccurate picture of the true magnitude of catches, the joint activity might lead to improved information on fish catches (attempts to estimate unreported catches and discards on a country-by-country basis could prompt countries to do so themselves on a regular and systematic basis). The UBC methodology, if successful in producing a report for the North Atlantic, could also be applied to produce a similar study for other areas of interest to FAO (e.g. Caribbean) and indeed had already been utilized in a study of China commissioned by FIDI. The joint project would propose making use of the Code of Conduct as a standard measure or baseline, of what constitutes responsible fishing. The project would evaluate their estimates of the impact of fishing and fishing practices against the Code. In some cases this would be done on a country- by-country basis and likely to involve criticism of individual countries for failing to comply with the Code.

4. Fishery-independent data

FAO/FIDI uses extensively foreign trade statistics to validate catches of species, which are prominent in international trade (e.g. tunas, shrimps). Supply/Utilization Accounts are also a good framework for data validation, although for resources and data limitations they are calculated at a broad level of species aggregation.

Agenda item 7: STATLANT Issues

In the table below are shown the STATLANTs questionnaires dispatched by FAO for the year 2000 inquiry.

STATLANTs questionnaires dispatched for the year 2000 inquiry

STATLANT	Area	Regional organization
STATLANT 08 A STATLANT 08 B	48, 58, 88	CCAMLR
STATLANT 21 A STATLANT 21 B	21	NAFO
STATLANT 27 A	27	ICES
STATLANT 34 A	34	CECAF
STATLANT 37 A	37	GFCM
STATLANT 41 A	41	CARPAS
STATLANT 47 A	47	ex ICSEAF/SEAFO
STATLANT 51 A*	51	RECOFI*
STATPAC 87 A	87	CPPS

*Partial coverage of the area

In the intersessional period, few modifications were implemented to the STATLANT "A" questionnaires (catches by sub-divisions). They consisted of changes to the STATLANT 21 A and accompanying notes to reflect new effort measurements for Boat Seines in the North West Atlantic; computerization of 1970 and 1971 STATLANT 37 data for the Mediterranean and Black Sea, and removal of aquaculture production from the time series, by sub-areas or division; inclusion of elasmobranchs lists as an addendum to STATLANT 34, 37, 21 and 27. In order to improve access to data archived in FAO, STATLANT 51 catches from sub-areas "Red Sea" and "Persian Gulf" have bees systematized for computerization. Similarly STATLANT 47 A data held in archives (for the former ICSEAF area, SouthEast Atlantic) were computerized. This project will further enhance the value of the CWP Integrated Atlantic file, providing a time series 1976-1999 of catches by sub-areas or divisions.

During the inter-sessional period, three STATLANT "B" questionnaires (effort data) have been discontinued, namely STATLANT 34 B, 37 B and 47 B. Given the scarce number of these questionnaires returned to FAO and that their data were not consulted by scientists or used during working groups, the compilation of these forms was only an additional burden to those national fishery statistical offices which returned their form duly filled.

FAO proposed to the CECAF Scientific Sub-Committee (Abuja, Nigeria, 30-31 October 2000) and to the GFCM Sub-Committee on Statistics and Information (Madrid, Spain, 26-28 April 2000) to recommend their ruling bodies to abolish, respectively, the STATLANT 34 B and STATLANT 37 B. The 15th Session of CECAF (Abuja, Nigeria, 1-3 November 2000) and the 25th Session of the GFCM (Sliema, Malta, 12-15 September 2000) endorsed the recommendations of their subsidiary bodies. The dispatch of the STATLANT 47 B was discontinued starting with the 1999 inquiry due to the very scarce returns and the persistent absence of a

regional body for the fishery management in the Southeast Atlantic after the abolition of the ICSEAF commission and the delay in the establishment of a new commission (i.e. SEAFO).

As a general consideration on the STATLANT inquiry questionnaires, it should be noted that a progressively declining number of forms are returned to FAO duly filled. Many countries prefer to submit their fishery statistics in various computerized formats, as outputs of their national system, without necessarily providing all the requested information. Some countries provide data in standard electronic formats (e.g. EUROSTAT and FAO). In this respect the development of an electronic form for STATLANT 21 and 27 has successfully being experimented in 2000 and has become the standard inquiry, with paper questionnaire being sent to a very small number of countries, which have either indicated this preference or cannot yet avail themselves of more modern means of communication.

Agenda item 8: Elasmobranch Statistics

In recent years, concerns for the status of shark stocks have raised a growing interest for elasmobranch statistics and generated a series of initiatives. During the inter-sessional period, FAO has: 1) published three technical papers on shark issues and prepared a new shark catalogue for identification purposes; 2) attached addenda listing elasmobranch species to STATLANTs 21A, 27A, 34A and 37A; 3) improved the breakdown of elasmobranch statistics in the FAO capture database.

1. Publications

In the framework of the International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks), the following FAO Fisheries Technical Papers have been published since the last CWP session:

- Castro, J.I., C.M. Woodley and R.L. Brudek, 1999. A preliminary evaluation of the status of shark species. *FAO Fisheries Technical Paper*, no. 380, 72 p.
- Shotton, R. (ed.), 1999. Case studies of the management of elasmobranch fisheries. *FAO Fisheries Technical Paper*, no. 378, parts 1-2, 920 p.
- Vannuccini, S., 1999. Shark utilization, marketing and trade. *FAO Fisheries Technical Paper*, no. 389, 470 p.

The Castro *et al*. paper was supervised and edited by FAO-FIDI. To collect background information for this publication, FIDI requested to selected countries to provide specific information on elasmobranch catches. Some of the data collected through this *ad hoc* inquiry were included in the FAO capture database (see below).

The FAO Species Identification and Data Programme (SIDP) is going to publish the revision of the "FAO Species Catalogue - Sharks of the World". The two volumes of the catalogue, authored by L. Compagno as the first edition of the shark catalogue published in 1984, are expected to be ready by the end of 2001. The new catalogue will include about 480 shark species in comparison with the 344 species included in the 1984 edition.

2. Addenda to STATLANT questionnaires

At its 9th Conference of the Parties (COP 9, Fort Lauderdale, Florida, USA 7-18 November, 1994) CITES invited FAO and Regional Agencies to improve monitoring of catch and trade of shark species. Following the CITES resolution, ICES requested FAO to attach an addendum to the STATLANT 27A listing additional elasmobranch species. The addendum was delivered to countries receiving STATLANT 27A starting with the 1998 inquiry. For the 1999 inquiry, an elasmobranch addendum was also attached to STATLANT 21A following a request of NAFO and to STATLANTs 34A and 37A in accordance with CECAF and GFCM respectively. However, as can

be seen in the following table, the returns of data through these elasmobranch addenda have been very poor.

Returns of elasmobranch addenda to STATLANTs for the 1999 inquiry

STATLANT	Responsible fishery commission	Number of species items listed in the addendum	Number of countries approached	Number of addenda returned with data
21A	NAFO	15	25	0
27A	ICES	37	27	1
34A	CECAF/FAO	12	36	1
37A	GFCM/FAO	19	26	1

Probably, these poor results can be considered as a demonstration that in most cases national administrations do not hold detailed catch statistics of elasmobranch species which are very often grouped in a single or in a few generic groups (e.g. all sharks, all rays, all elasmobranch species, etc.). Hence, obtaining statistics at the species level through the submission of species lists without other supporting actions has proved to provide scarce results. Once the "FAO Species Catalogue - Sharks of the World" will be ready, a supporting action that could be considered is the preparation of simple guides at the regional level for the identification of shark species. These guides should be then distributed to national data collectors. A good model to prepare these booklets could be the guide to the identification of shark fin caught by tuna longline fishery "Characterization of Morphology of Sharks Fin Products" published by the Fisheries Agency of Japan in 1999.

3. Improvement of FAO statistics

Some improvements have been done in the latest years in the breakdowns of elasmobranch statistics included in the FAO capture database (see table below).

Breakdowns of FAO capture statistics for ISSCAAP group 38 (Sharks, rays, chimaeras)

	1996	1997	1998	1999
Species items	37	46	55	59
Countries	108	107	107	113
Fishing areas	17	17	18	18
Total number of series	341	361	398	425
Percent. of catches at the genus/species level	18.3%	18.6%	19.7%	19.8%

Note: only items with at least 1 mt have been considered

Besides some improvements in the data reported by national authorities, breakdown increases have been achieved separating from generic groups the catches reported at the genus/species level whenever the information was available and including data from additional sources. The former improvement has been facilitated by the creation of the ASFIS list that has made available codes for all shark species. The additional sources providing elasmobranch statistics have been the *ad hoc* inquiry for the preparation of the Castro *et al*. paper and the ICCAT and IOTC shark statistics. Only some of the data collected with the *ad hoc* inquiry have been included in the FAO capture

database as they often covered a single or a few years and no other data were reported in the standard submissions for the subsequent years. Data disseminated by ICCAT and IOTC on shark catches have been taken when a given quantity, species or country was not yet included in the FAO database.

Agenda item 11: Integration of Fishery Statistics and Joint Dissemination

1. Integration and dissemination of Atlantic catch statistics

Following a recommendation from CWP-18 (paragraph 89), a CWP Sub-Group on Publication of Integrated Catch Statistics for the Atlantic met in Copenhagen on 10-11 February 2000 (see CWP/19/2(A)). The Sub-Group developed plans for the development of a trial integrated database for the Atlantic Ocean for the period 1950-1998 comprising data from CCAMLR, CECAF, FAO, GFCM, ICCAT, ICSEAF and ICES for years for which they are available.

Although, for all species except tuna and tuna-like species, the data are submitted by the national authorities to the international agencies on a system of FISHSTAT and STATLANT questionnaires using harmonised definitions and concepts, for a variety of reasons there are discrepancies between the data held by the regional agencies and FAO.

In order to avoid duplication and maximise the detail available to the user, the following general principle has been applied in attributing priority to the various data sources:

1. ICCAT data for tuna and tuna and tuna-like species,
2. data from regional agencies (CCAMLR, CECAF, GFCM, ICES and NAFO) for non-tuna species, and
3. data provided by FAO where the data are not available from other sources.

The preference for data from the regional agencies rather than those from FAO where corresponding data are available from both sources is based largely on the fact that the data from the regional agencies are generally available in finer detail (particularly regarding the area of capture) than those from FAO.

The following list represents the availability of data by sub-division for each FAO major fishing area:

Major fishing region		Source	Availability of detailed data
21	Northwest Atlantic	NAFO	1960-1998
27	Northeast Atlantic	ICES	1973-1998
31	Western Central Atlantic		not available
34	Eastern Central Atlantic	CECAF	1972-1997
37	Mediterranean & Black Seas	GFCM	1972-1997
41	Southwest Atlantic		not available
47	Southeast Atlantic	ICSEAF	1982-1988
48	Atlantic Antarctic	CCAMLR	1970-1998

For those FAO major fishing areas for which data by sub-division are not available for any part of the period 1950-1998 (areas 34 and 41) and for those regions for which the data by sub-division are only available for part of the period, data provided by FAO has been used for the missing years of full data. The international agency contributing the data of the data-file is included in the record of each time series.

With the exception of the Eastern Central Atlantic and the Mediterranean, the data for the period 1984-1998 refer to the production from capture fisheries. For this period, aquaculture production has been excluded. Prior to 1984 the data refer to production from capture fisheries and aquaculture.

The data included were those supplied to Eurostat by the secretariats of the international agencies by 1 September 2000. Eurostat undertook the task of integrating the data sets and FAO would like to acknowledge Eurostat for the large amount of work that this entailed and the many problems which had to be overcome. FAO incorporated the integrated data set into FISHSTAT Plus and made it available as a downloadable file (http://www.fao.org/fi/statist/FISOFT/FISHPLUS.asp). ICES subsequently published it on a CD ROM together with their own statistics.

Now that the all rules for aggregation have been agreed and experience has been gained in assembling the data sets, CWP may wish to consider whether this exercise should be repeated regularly in which case there will be a need for a systematic was of assembling the data. FAO considers the exercise to have generated a useful product (which would also be instructive in resolving discrepancies amongst agencies databases), but one that will only remain useful if maintained updated. Future updates could benefit from the revised GFCM and CECAF databases which now have aquaculture excluded, and from the reconstituted and updated ICSEAF/SEAFO database. All three regional databases are now totally harmonized with the FAO global capture fishery database. The possibility of undertaking similar exercises for other regions could also be considered.

2. Adoption of regional agency statistics in the FAO global statistics database

Following the recommendations at paragraph 81[1] of the CPW-18 Report, FAO has made efforts to include in its database the fishery statistics provided by the regional bodies as much as possible. Data for Antarctic fishing areas are regularly taken from those assembled by CCAMLR. Regarding the data disseminated by the four regional tuna agencies (IATTC, ICCAT, IOTC and SPC), in the last year FAO has replaced the tuna data provided by several national correspondents with those of the tuna agencies. In Table 1 are listed the countries for which the 1999 tuna data have been taken from the databases of the four tuna regional agencies.

[1] "...CWP recommended that its members should in general regard as the most reliable source of data those held by the regional body which has assessment responsibility for the stock. It also recommended that FAO should introduce a more systematic way of adopting such data in its data set, automating the process as much as possible."

Table 1: Countries in the FAO database for which tuna data from regional agencies were adopted for 1999

ICCAT	IOTC	SPC	IATTC
Angola	Australia	Amer Samoa	Colombia
Belize	China Main	Australia	Other nei
Benin	Eritrea	China Main	Panama
Bermuda	France	Fiji Islands	Spain
Brazil	India	Kiribati	Vanuatu
Cape Verde	Iran	Micronesia	Venezuela
China Main	Italy	New Zealand	
Côte dIvoire	Malaysia	NewCaledonia	
Croatia	Maldives	Papua N Guin	
Cyprus	Oman	Samoa	
Dominica	Other nei	Solomon Is	
France	Philippines	Spain	
Gabon	Qatar	Vanuatu	
Ghana	Seychelles		
Greece	Spain		
Guadeloupe	Sri Lanka		
Guyana	Thailand		
Honduras			
Italy			
Libya			
Malta			
Martinique			
Morocco			
Namibia			
NethAntilles			
Other nei			
Panama			
Philippines			
Portugal			
Sao Tome Prn			
South Africa			
Spain			
St Helena			
St Lucia			
Trinidad Tob			
Tunisia			
Turkey			
Uruguay			
Venezuela			

However, after careful consideration FAO has decided that it is not appropriate to implement at this time a system of blanket replacement of statistics reported by countries to FAO with regional agency statistics, as envisaged in the CWP recommendation. FAO agrees with the CWP view that the regional fishery bodies which have assessment responsibility for the stocks generally are the most reliable sources of those statistics, but experience has shown that this is not always the case, particularly for statistics for stocks which are not assessed but which may nevertheless fall within the remit of the agency.

There are three main reasons why not all data provided by tuna agencies are directly included in the FAO database: 1) different sources; 2) different data coverage; and 3) different timings of dissemination and these are considered in turn below.

Different sources

Capture statistics included in the FAO database are provided by national statistical correspondents while regional agencies generally rely also on information obtained by research institutes. For example, data on Japanese tuna catches in the west Pacific are provided to FAO by the Ministry of Agriculture, Forestry and Fisheries while SPC obtains his data mostly from the National Research Institute of Far Seas Fisheries. For many countries, data reported by national correspondents and those disseminated by tuna agencies have marked differences.

Last year, SPC and FAO undertook a joint exercise on the discrepancies between data for the historical tuna statistics of Japan, Korea Rep. and Taiwan Province of China and published the results in the "Internal Report" series of SPC. Despite the involvement of the national correspondents for the two organizations, most of the discrepancies have not been solved.

FAO includes in its database statistics provided by national offices for some major producing countries (e.g. Japan, Korea Rep., Russian Fed./Former USSR, Taiwan Province of China, USA) for two main reasons: a) national time series are longer than those held by tuna agencies and therefore fit better FAO's requirements; b) FAO needs to maintain a trustful relationships with national officers, who would be offended by the mistrust in the quality of the data they have provided if such data were replaced by those obtained from other sources.

Different coverage

There are cases in which data reported by tuna agencies do not include the artisanal tuna catches. For example, two years ago FAO received a complaint from the fishery statistician of French Polynesia because FAO had replaced the data he provided with those held by SPC. He explained in details that the data he provided to FAO were more complete as they included also the artisanal component, excluded from the SPC database. FAO had to rectify this.

Different timings of dissemination

FAO fishing areas and areas used by ICCAT do not coincide. As ICCAT uses areas at different levels of detail and in some case rather generic (e.g. 'Atlantic'), FAO has to make assumptions to re-assign ICCAT data to FAO fishing areas. ICCAT disseminates geo-references of the tuna catches through the CATDIS database but these data are one year behind the main ICCAT and FAO data. For this reason ICCAT's geo-referenced data cannot be routinely used to calculate tuna catches by FAO fishing area although FAO prepared a database where all the geographical squares/rectangles used by ICCAT are assigned to the corresponding FAO fishing area.

Future developments

Following experience gained through the integration exercise with the Atlantic catch data, FAO would like to develop more systematic linkages and better correspondence between its global statistics and the regional statistics containing more geographical detail, and sometimes also taxonomic detail. Such developments are likely to be piecemeal and gradual and will involve developing "rules" based on past practices (e.g. Table 1) and experience rather than implementing blanket replacements according to lead agency designations.

Agenda item 13: Record of Vessels Fishing on the High Seas

1. Introduction

The Compliance Agreement establishes minimum requirements to be applied by flag states to register and authorise fishing vessels to fish on the high seas and requires that no party shall allow fishing vessels flying its flag to fish on the high seas without its authorization. One of its objectives is to prevent vessels from undermining the effectiveness of international conservation and management measures through reflagging, requiring that no party shall authorize a vessel to fish on the high seas if that vessel undermined international conservation and management measures while previously registered in another state. Most importantly, it stipulates that vessels will only be authorized if the flag state is in a position to exercise effectively its responsibilities under the Agreement[2].

The Compliance Agreement also provides for the exchange of information on fishing vessels authorized to fish on the high seas and stipulates that FAO should be a repository for this information which would be shared amongst parties to the Agreement. A database called the High Seas Vessel Authorization Record (HSVAR) was developed for this purpose in 1994 and data for two countries were entered for test purposes pending the coming into force of the Agreement. The technology used for the database is now outdated and the database needs to be developed in a new environment, and this provides an opportunity to expand the technical content to meet other information needs such as those relating to implementation of the UN Fish Stocks Agreement, the FAO Code of Conduct for Responsible Fisheries, the FAO International Plan of Action for the Management of Fishing Capacity and fishery status and trends reporting in general.

2. FAO Compliance Agreement

The FAO Conference at its Twenty-seventh Session (November 1993), through Resolution 15/93, approved the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas for submission to Governments for acceptance. Twenty five acceptances are required for the Agreement to come into force. So far 19 acceptances have been received.

At its Thirtieth Session in November 1999, the FAO Conference adopted a resolution calling for the early acceptance of the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas in order to bring them it force as soon as possible.

Article VI of the Agreement requires Parties to exchange information on vessels authorised by them to fish on the high seas, and obliges FAO to facilitate this information exchange. FAO developed a prototype database in Ingres called the High Seas Vessels Authorisation Record (HSVAR).

[2] Article III(3) of the Compliance Agreement.

In October 1995, a Circular State Letter (G/FI-24/PR) was sent to all States which had accepted the Agreement informing them that FAO had developed a prototype database and requesting those States to provide data on vessel authorisations to facilitate testing. FAO could grant access to the prototype database to countries providing data so that feedback can be obtained from potential users. So far only two States (Canada and the USA) have provided such vessel authorisation data and over 1150 vessel records are in the database. Japan has indicated that it will provide over 1000 vessels for the database during 2000 and sample records have been provided. The European Commission has requested information on record formats for the purpose of providing data on European Community vessels.

The International Plan of Action for the Management of Fishing Capacity which was adopted by COFI last year states (paragraph 18) that:

> *States should support the establishment by FAO by the end of 2000 of an international record of fishing vessels operating on the high seas, following the model indicated in the Compliance Agreement".*

In September 2000 a further Circular State Letter (G/FI-26) was sent to all States urging them submit data. To date, data have been received from the USA, Canada, Japan and Norway.

3. Potential benefits from the Compliance Agreement

The Compliance Agreement thus provides a basis for the establishment of more effective means of enforcement with respect to parties and non-parties, although its practical effect depends crucially on the existence of international conservation and management measures[3] and for many regions of the world's oceans such regulation do not yet exist. Where international conservation and management measures do exist for the high seas, it is clear that the Compliance Agreement has the potential to really improve compliance when it comes into force[4].

Apart from promoting compliance, the Agreement has the potential to substantially improve the monitoring by flag states of fishing activity and catches of their vessels and the availability of data. Article III(7) states:

> *Each Party shall ensure that each fishing vessel entitled to fly its flag shall provide it with such information on its operations as may be necessary to enable the Party to fulfil its obligations under this Agreement, including in particular information pertaining to the area of its fishing operations and to its catches and landings.*

The Compliance Agreement has been declared part of the Code of Conduct and as such, FAO will monitor the application and implementation of the Agreement and the Code as a whole and their effects on fisheries. The Code of Conduct requires that all States and relevant international organisations, whether governmental or non-

[3] Hey, E. Global Fisheries Regulations in the First Half of the 1990s. Int. J. mar. coast. Law. 1996. vlo. 11, no. 4, pp. 459-490.

[4] Twenty five acceptances are required for the Agreement to come into force. In March 2000, there have been 15 acceptances.

governmental, should actively cooperate with FAO in this. In addition, the Fisheries Department is required to report on progress in the implementation of the International Plans of Action. Regular reports will be made to COFI and to the UNGA.

4. Compliance Agreement provisions on exchange of information

Article VI of the Compliance Agreement deals with the exchange of information. It requires that "Each Party shall make readily available to FAO the following information with respect to each fishing vessel entered in the record required to be maintained under Article IV:

(a) name of fishing vessel, registration number, previous names (if known), and port of registry;
(b) previous flag (if any);
(c) International Radio Call Sign (if any);
(d) name and address of owner or owners;
(e) where and when built;
(f) type of vessel;
(g) length."

In addition, a second category of information on each authorized vessel shall be provided "to the extent practicable":

(a) name and address of operator (manager) or operators (managers) (if any);
(b) type of fishing method or methods;
(c) moulded depth;
(d) beam;
(e) gross register tonnage;
(f) power of main engine or engines.

Each party is further required to notify FAO of any modifications to the data listed above and to promptly inform FAO of any additions or deletions to the record. In the case of deletions, the party shall specify the reason according to whether it was

(i) the voluntary relinquishment or nonrenewal of the fishing authorization by the fishing vessel owner or operator;
(ii) the withdrawal of the fishing authorization issued in respect of the fishing vessel for contravention of the Compliance Agreement;
(iii) the fact that the fishing vessel concerned is no longer entitled to fly its flag;
(iv) the scrapping, decommissioning or loss of the fishing vessel concerned; or
(v) any other reason.

The Agreement provides for exemptions from application of the authorization process of vessels less than 24 metres in length overall subject to certain conditions, and each party is required to inform FAO of any such exemptions granted, including exemptions agreed on a regional basis which apply to its vessels.

Finally, there are provisions for the reporting of information on inappropriate fishing activities, presumably including what we now call Illegal, Unreported and Unregulated (IUU) fishing. Each party is required to report promptly to FAO "all

relevant information regarding any activities of fishing vessels flying its flag that undermine the effectiveness of international conservation and management measures" and the measures imposed in respect of such activities. There is also the possibility for a party to report to FAO on such activities of vessels flagged by other countries, after the party has provided the evidence to the flag state concerned.

Turning to dissemination of information, the Agreement is quite restrictive in its specification of the users of the information to which FAO should provide the information. It states that FAO shall "circulate"[5] the information to all Parties, and, on request, individually to any Party. FAO shall also, "subject to any restrictions imposed by the Party concerned regarding the distribution of information, provide such information on request individually to any global, regional or subregional fisheries organization".

5. FAO's database in support of the Compliance Agreement

HSVAR is a database which was developed to meet FAO's obligations as specified in Article VI of the FAO Compliance Agreement to facilitate the exchange of information on vessels authorized by their flag States to fish on the high seas, on non-compliant activities and other information. It was developed in 1994 in Ingress (using Canadian trust funds) and was demonstrated at several meeting including sessions of COFI and the CWP. Following a change in FAO's corporate standard database, it is now being migrated into Oracle and will be included in FIGIS so that many additional features such as access via the Web and remote submission of data by parties to the Agreement will be facilitated. Graphical user interfaces are being designed and some examples of query screens are annexed to this paper.

Four countries have so far provided data: Canada (6 vessels), Norway (134 vessels), USA (1155 vessels) and Japan (1908 vessels).

Table 1 lists the data fields which were included in the first implementation of HSVAR which was limited to the vessel information specified in Article VI of the Compliance Agreement. Table 1 also indicates which additional data fields might usefully be included in the next version of HSVAR to include vessel attributes mentioned in the UN Fish Stocks Agreement and the Code of Conduct (denoted as "?" in the table).

While there will be the facility within FIGIS to restrict access to individual modules such as HSVAR to authorized users, the general intention for FIGIS is to integrate information through database linkages and so greatly increase the overall value and utility of the unformation and to make it available as widely as possible. The provisions of the Compliance Agreement, however, would not allow these objectives to be fully met for the HSVAR database.

[5] The Agreement distinguishes between two categories of information in specifying how dissemination should be effected. FAO shall "circulate periodically" the vessel details but "circulate promptly" the information on exemptions, inappropriate fishing activity, and other matters.

6. GFCM/COPEMED database in support of the Compliance Agreement

The General Fisheries Commission for the Mediterranean (GFCM) has agreed that when the Compliance Agreement comes into force and is applied to the high seas zone in the Mediterranean Sea, the exemption should only apply to vessels of less than 15 metres length overall (this might eventually be reduced to 12 metres). GFCM requested the FAO executed COPEMED project to facilitate collection of information on vessels over 15 metres fishing in the Western Mediterranean as a first step. In considering the requirements for information on vessel details, COPEMED took into account not only the provisions of Article VI of the Compliance Agreement but also the UN Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries

COPEMED successfully assembled data for six countries in 1997 and 1988 and has passed the information to FAO and has now ceased this activity. The vessel attributes for which information was provided by the six countries (Spain, Morocco, France, Malta, Tunisia and Libya) are shown in Table 2.

7. Database fields

The Compliance Agreement is quite specific about what data must be reported to FAO and what data should be reported to the extent practicable. The UN Fish Stocks Agreement[6] similarly distinguishes between vessel data that states "should collect" and data they "will collect", but these are somewhat different from the Compliance Agreement. The Code of Conduct also specifies vessel attributes which states should maintain in a vessel record, and again these are somewhat different from those of the two agreements. These requirements are summarized in Table 1.

What then is the situation in reality as to the availability of such data? With regard to national legislation, the requirements for the licensing and or registration of a fishing vessel vary greatly. Some countries register on the basis of length, some by GRT or GT and others by NT. But all have to acknowledge length overall with regard to the International Collision Regulations, therefore, apart from normal shipbuilding practice, an administration is duty bound to record the overall length of a vessel. Length overall should therefore should be a mandatory field in HSVAR, as indeed is specified by the Compliance Agreement, with other size measures being optionally reported.

Apart from application of the provisions of International Conventions, administrations may apply conditions with regard to the crewing of a vessel. In such instances, the reference points are generally set out in the record of particulars of a vessel in connection with the register of a vessel and or the issue of a license to fish. In the majority of countries, the pertinent particulars are the:

[6] Article 4 of Annex 1.

Technical	Others
Length Overall Registered length Breadth Depth Gross tonnage[7] Net tonnage[8] power Type of vessel. Material of construction	Vessels name and Number Port of registry International Radio Call Sign Particulars of the owners or managers. Where Built When built

These vessel details should therefore be available from most countries and are generally recorded in international registers such as the Lloyd's Register (Table 1), although not completely.

Fisheries managers use a combination of the reference points as well as fishing vessel types with regard to, *inter-alia*, assessments of potential fishing effort, areas to be fished, gear restrictions and fleet restructuring policies (including buy out programmes). A typical example would be provisions of access agreements for the application of licence fees and other charges to be applied to foreign flag fishing vessels. The UN Agreement on Straddling Stocks and Highly Migratory Stocks makes specific reference to the fact that States should collect vessel related data for standardizing fleet composition and vessels fishing power and for converting between different measures of effort in the analysis of catch and effort data. There are also other users of fisheries fleet data with diverse interests such as environmental groups and manufacturers or suppliers of fishing vessels and equipment. HSVAR cannot meet all such needs, and indeed it should not be intended to do so. The needs for fisheries management at the national and regional levels will often require more specific and detailed vessel information.

8. Conclusions

The HSVAR database will facilitate the exchange of information in the implementation of the Compliance Agreement and the promotion of compliance with conservation and management measures by fishing vessels on the high seas. But it has the potential to provide additional benefits including providing a means to monitor status and trends of fishing fleets operating on the high seas and support the implementation of the IPOA for the Management of Fishing Capacity. However, to achieve this data will have to be provided by all the major high seas fishing nations. The IPOA has called on states to provide such data even prior to the coming into force of the Compliance Agreement and and it is FAO's responsibility to try to secure such

[7] "Gross Tonnage" means the measure of the overall size of a ship determined in accordance with the provisions of the International Tonnage Convention.

[8] "Net Tonnage" means the measure of the useful capacity of a ship determined in accordance with the provisions of the International Tonnage Convention.

data. A proposal for a submission format will be provided to the CWP meeting for comment.

By adding additional fields to the data requirements specified in the Compliance Agreement, such as those indicated by "?"in Table 1, the database can be made more useful for these additional purposes. If such additional data are not reported by countries, the gaps may be partially filled by reference to the Lloyds database or other international registers. Limited experience so far would indicate that many countries are in a position to report most of the data fields (Table 2).

CWP may wish to advise on the usefulness and appropriateness of including additional fields and on the suggested document type definition (DTD) structure (Figures 1-4) which would provide the data submission formats. CWP may also wish to advise on the usefulness of making the vessel detail information in the database available routinely to regional fishery bodies.

Table 1: Information requirements concerning vessels authorized to fish on the high seas according to international instruments and availability in databases

● mandatory ○ optional ? introduce as optional

Name of the Attribute	Instruments			Databases		
	Comp-liance	UN Fish Stocks	Code & Guide-lines	FAO HSVAR	COPE MED	Lloyds
Data year of validity	●	●	○	●	●	●
High seas authorization	●	●	○	●		
Name of vessel	●	●	○	●	●	●
National Registration Number	●	●	○	●	●	○
Previous name of the vessel	○			○	○	●
Port of registry	●	●	○	●	●	●
Country	●	●	○	●	●	●
Previous flag	●			●	○	●
International Radio Call Sign	●	●	○	●	○	●
Name of the owner	●		○	●	○	●
Address	●		○	●	○	○
Name of the operator	○		○	○	○	○
Address	○		○	○	○	○
Year of building	●	○	○	●	●	●
Building site – Town	●			●	○	●
Building site – Country	●			●	○	●
Type of vessel	●	●	○	●	●	○
Main fishing gear	○		○	○	●	
Length overall	●		○	●	●	○
Length, registered		○	○	?		○
Moulded depth	○			○	○	●
Beam	○			○	○	●
Gross registered tonnage	○	○	○	○	●	○
Gross tonnage				○		○
Power of main engine	○	○	○	○	●	●
Material of build		○		?	●	●
Hold capacity (cubic meters)		○		○	○	○
Theoretical crew size		●		?	○	
INMARSAT number			○		○	
State of activity			○	?	○	○
Navigational aids		●		?		○
Storage method		○		?		○
Number of gear		○				
Size of gear		○				
Lloyd's Register Number			○	?		●
Management contraventions	●		○	●		○

Table 2: Attributes reported so far by the different countries to FAO and COPEMED

Name of the Attribute	Canada	USA	Japan	Spain	Mor-occo	France	Malta	Tunisia	Libya
Data year of validity	●	●	●	●	●	●	●	●	●
High seas authorization	●	●	?						
Name of vessel	●	●	●	●	●	●	●	●	●
National Registration Number	●	●	●	●	●	●	●	●	●
Previous name of the vessel	●	●	●				●		
Port of registry	●	●	●	●	●	●	●	●	●
Country	●	●	●	●	●	●	●	●	●
Previous flag	●	●	●				●		●
International Radio Call Sign	●	●	●				●		
Name of the owner	●	●	●				●		●
Address	●	●	●				●		
Name of the operator							●	●	
Address									
Year of building	●	●	●	●	●	●	●	●	●
Building site – Town	●	●	●		●		●		
Building site – Country	●	●	●		●		●		●
Type of vessel	●	●	●	●	●	●	●	●	●
Main fishing gear				●	●	●	●	●	●
Length overall	●	●	●	●	●	●	●	●	●
Length, registered									
Moulded depth	●	●	●		●		●		●
Beam	●	●	●		●		●		●
Gross registered tonnage	●	●	●	●	●	●	●	●	●
Power of main engine	●	●	●	●	●	●	●	●	●
Material of build				●	●		●	●	●
Hold capacity (cubic meters)									
Theoretical crew size							●	●	●
INMARSAT number									
State of activity							●		

Figure 1: Proposed overall high level DTD structure, showing the main branching between the containers nesting unique identifiers of the vessel (Vessel_Ref or Vessel_Ident), and vessels descriptors (Vessel_Profile and Vessel_Features). Source makes provision for documenting ownership.

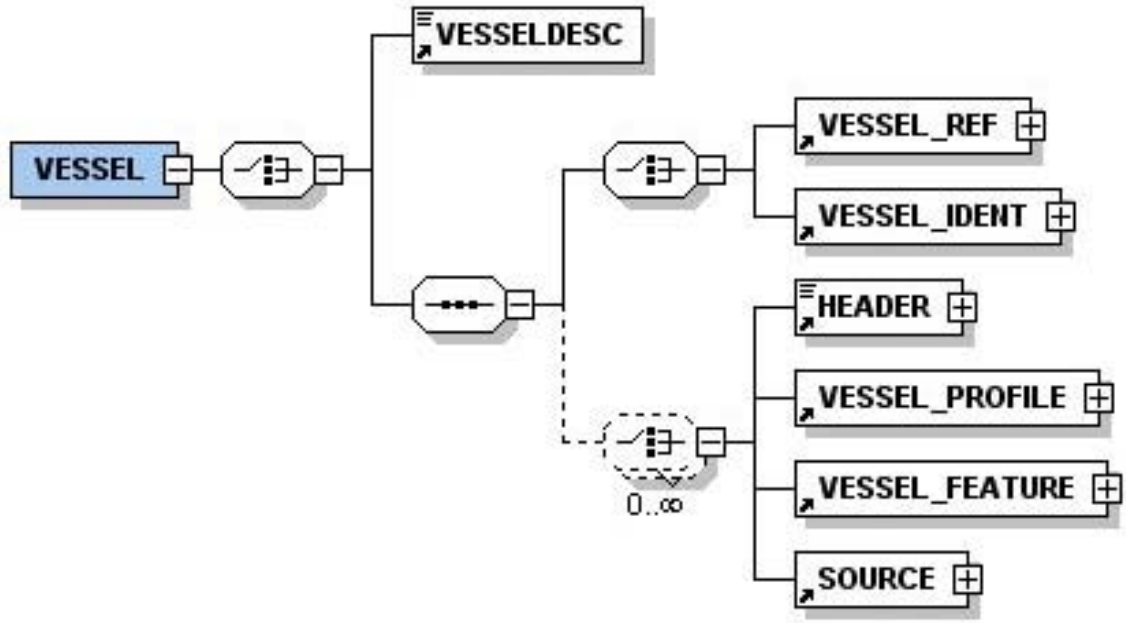


Figure 2: Proposed DTD element containing vessel's unique identifiers, used when a new vessel has to be created. Vessel_Ref has same structure, but is used when reference is made to an existing vessel

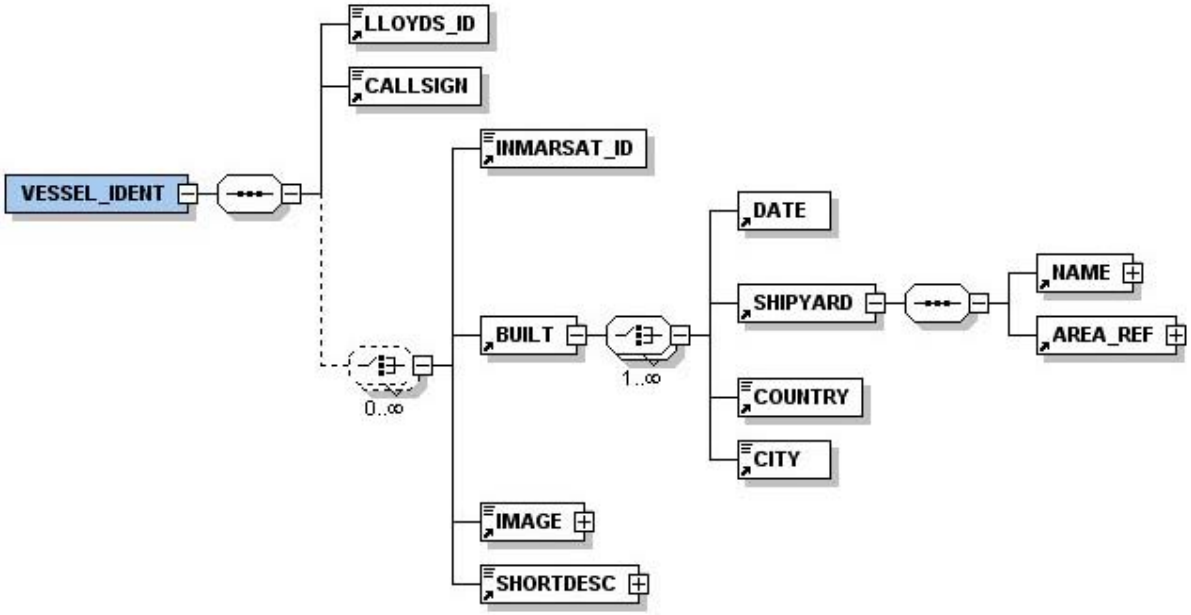


Figure 3: Proposed DTD element containing vessel's intrinsic characteristics which make that vessel distinct (from physical view point) from others and which are reasonably unlikely to change during a vessel's lifetime. Vesseltype_Ref is a reference to the standard ISSCFV classification.

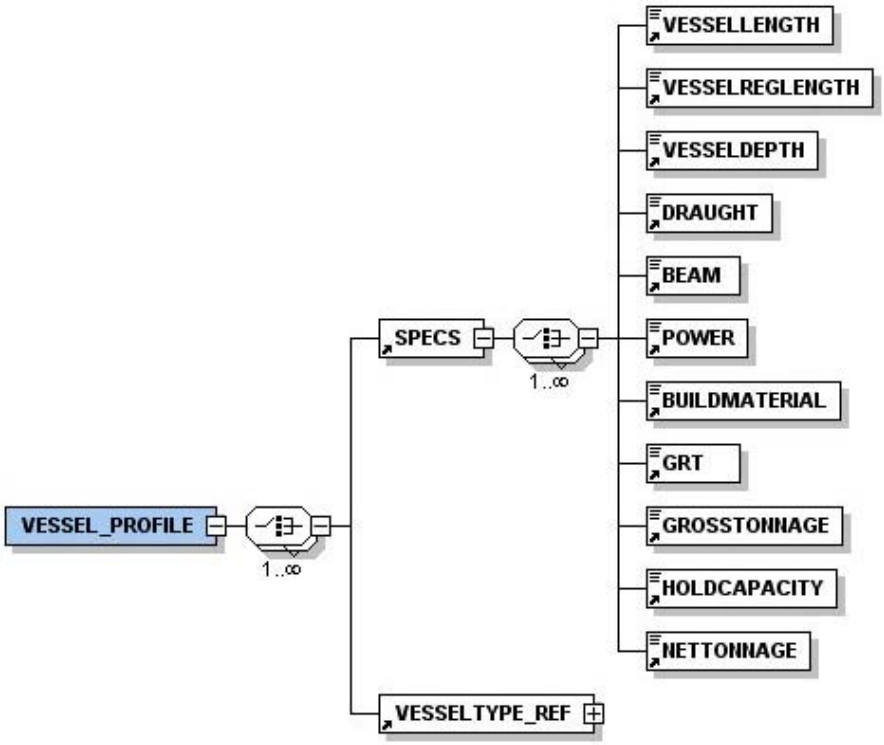
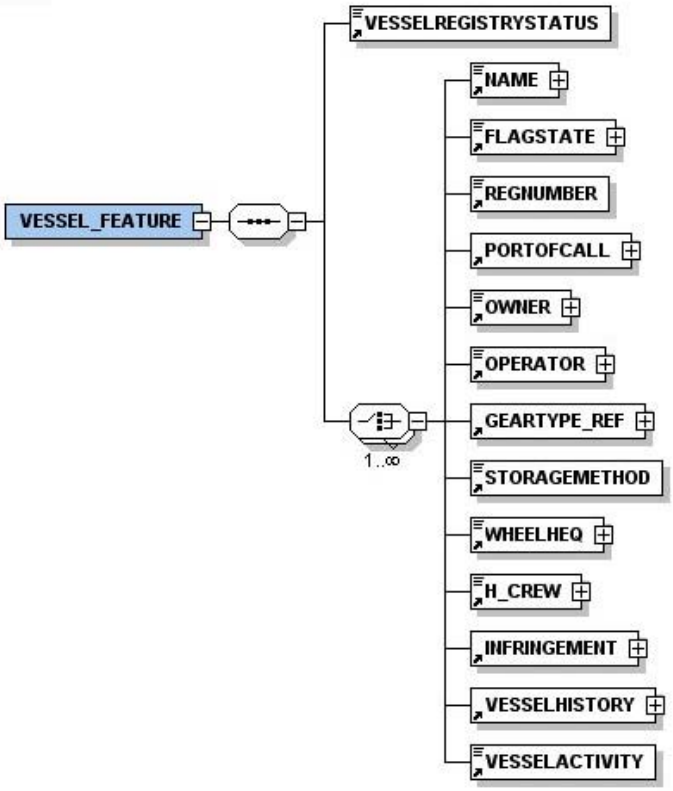


Figure 4: Proposed DTD elements mostly extrinsic to the vessels, reasonably likely to change during a vessel's life. Vessel's history recapitulates all changes recorded on a single vessel, referring to its unique identifiers.


VESSEL_FEATURE
VESSELREGISTRYSTATUS
NAME
FLAGSTATE
REGNUMBER
PORTOFCALL
OWNER
OPERATOR
GEARTYPE_REF
STORAGEMETHOD
WHEELHEQ
H_CREW
INFRINGEMENT
VESSELHISTORY
VESSELACTIVITY
1..∞

Agenda item 14: Statistical Classifications

1. Proposal for Amending Division 05: Fishing - of the UN International Standard Industrial Classification of all Economic Activities (ISIC)[9].

Summary

An alternative classification scheme for Division 05 of ISIC is proposed which takes into account the distinct activities within the fisheries sector and recent growth and growing economic significance of aquaculture in both developed and developing countries. The proposed scheme recognises aquaculture and captures fisheries as independent economic activities that often produce similar outputs. Division 05, which is renamed "Capturing and farming of aquatic organisms", is separated into two

(a) Group 051 Capture fisheries
(b) Group 052 Aquaculture.

It is proposed to further subdivide these two groups into classes to cluster the key categories of operations within the activities.

Objective of paper

To propose modification and expansion of the ISIC classification Division 05: fishing, operation of hatcheries and fish farms, service activities and activities incidental to fishing, taking due account of recent changes and developments in the activities within the fishery sector.

Background

The United Nations Statistical Commission periodically reviews international statistical classifications to ensure best possible harmonisation of the classification developed by different international organisations, to facilitate international comparability of various statistics according to economic goods and services. One such classification, is the International Standard Industrial Classification of All Economic Activities proposed by the Economic and Social Council of the UN in 1948. The original classification was subsequently revised and issued in 1958, 1968, and 1989 as the 1st, 2nd, and 3rd revisions[10], respectively. During this period the classification code allocated to "fishing" and the content has been slightly changed. In the current (third) revision, "Fishing" is separated from Division 01 (Agriculture, hunting and fishing) and all activities related to capture fisheries and aquaculture are combined and classified in one group under Division 05: Fishing.

In general, such revisions of ISIC take into consideration:

[9] Since this note was drafted some developments have occurred in ISIC for implementation in 2002 and in preparation of the thorough revision planned for 2007. Some of the proposed numbering may have to be changed.
[10] A 3.1 revision of ISIC is planned for implementation in 2002, in preparation to a thourough revision in 2007.

- the characteristics of the "activities"[11] of the producing units,
- any significant changes and developments of the activities represented within these groups,
- their relative importance and uses made of the classifications in different socio-economic studies.

Based on these considerations and criteria, the justification below supports a more appropriate classification of Division 05 in which the activity, fishing or capture is separated from the activity of aquafarming or aquaculture.

Justification

Characteristics of fisheries activities

The fisheries sector is typically composed of two subsectors: capture fisheries and aquaculture. At present capture fisheries and aquaculture are not recognised or defined under the International Standard Industrial Classification Of All Economic Activities (ISIC) as separate economic activities. Instead capture fisheries and elements of aquaculture are collectively aggregated into Group 050: called " fishing, operation of hatcheries and fish farms, service activities and activities incidental to fishing". Capture fisheries and aquaculture, however, are two separate recognisable activities, utilising distinct production processes to produce similar products.

Capture fishery refer to **hunting, collecting and gathering activities** directed at removing or collecting live wild aquatic organisms (predominantly fish, molluscs and crustaceans) including plants from the oceanic, coastal or inland waters for human consumption and other purposes by hand or more usually by various types of fishing gear such as nets, lines and stationary traps. Such activities can be conducted on the inter-tidal shoreline e.g. collection of molluscs such as mussels and oysters or shore based netting, or more commonly from home made dugouts or commercially made boats in inshore, coastal waters or offshore waters. In addition, the aquatic resource being captured is usually common property resource irrespective of whether the harvest from this resource is undertaken with or without exploitation rights. Such activities also include fishing restocked water bodies.

In contrast, aquaculture or aquafarming refers to the production process involving the **culturing** or **farming (**including harvesting) of aquatic organisms including finfish, aquatic molluscs, crustaceans and plants, crocodiles, alligators, amphibians where farming refers to their rearing up to their juvenile and/or adult phase under captive conditions. In addition, aquaculture also encompasses individual, corporate or state ownership of the individual organisms being reared and harvested.

In recent years, however, management of aquatic resources broadened, notably in inland capture fisheries. Human interventions such as exclusion of predators, introduction of species and restocking, minimising the incidence of disease on natural mortality rates, excluding competitors and engineering, in water bodies where aquatic organisms are captured have increasingly blurred the distinction between aquacultural and capture fisheries activities.

[11] Activity is regarded as " a combination of actions that result in a certain set of products.. and is characterised by input of resources, a production process and an output of products ' (ISIC, 1990).

Similarly, the methods and sophistication of farming aquatic organisms have also changed. Culture practices expanded from predominately freshwater to marine and brackish water areas, the complexity of culture systems and facilities themselves and the interaction of aquaculture with other food production sectors have increased.

Therefore to facilitate an appropriate classification for the routine monitoring of production from aquaculture and capture fisheries, FAO recommends classification of fisheries activities according to Table 1.

Proposed revision to Division 05 Fishing

The following proposed classification provides an alternative Division name, which is more appropriate and embracing to represent the entire sector. Therefore the classification " Capturing and farming of aquatic organisms" is proposed for Division 05. The current Group 050 is divided into 051 and 052 and, entitled "capture fisheries" and "aquaculture", respectively, thus recognising the two separate activities, which employ different production processes. The current and proposed schemes are outlined below:

Current scheme

Division: 05 Fishing

***Group*: 050** Fishing, operation of hatcheries and fish farms, service activities and activities incidental to fishing of hatcheries and fish farms

Proposed scheme

Division 05 Capturing and farming of aquatic organisms

Group: 051 Capture fisheries
Group: 052 Aquaculture

Expansion of Proposed scheme

Group 051 : Capture fisheries

This class includes fish, and aquatic molluscs crustaceans and plants killed, caught trapped or collected for all commercial, and subsistence purposes in oceans, coastal or inland waters. These activities include:

Class 0511 Fishing on a commercial or artisanal basis
Class 0512 Collecting or gathering of marine, brackish or freshwater crustaceans, molluscs, sponges, coral or plants for commercial and subsistence purposes.
Class 0513 Trapping, hunting or gathering aquatic animals such as turtles, sea squirts and other tunicates, sea urchins or other echinoderms and other aquatic invertebrates.
Class 0514 Processing of fish, molluscs and crustaceans aboard fisher boats associated with maintaining quality.

Exclusions:

Capturing of sea mammals except whales (e.g. walruses, seals) is classified in class 0150. Processing of finfish, crustaceans and molluscs not connected to fishing activity i.e. on factory ships or in factories ashore are classed in 1512. Net making and mending are classified under class 1723, fishing boat repair is categorised in class 3511. Recreational fisheries should remain in class 9249.

Group 052 : Aquaculture

This group includes all aquatic commercial and subsistence farming activities of, finfish, aquatic molluscs, crustaceans and plants, crocodiles, alligators and amphibians, based in ocean, coastal and inland waters and on land using waters from these and other sources such as rain or groundwater. These activities include:

Class 0521 Operations for aquatic **seed propagation** such as hatcheries for fish larvae, fry and fingerling production, mollusc spat production, crustacean seed-production and aquatic plant propagules, for ongrowing, ornamental or other purposes.

Class 0522 Operations for **ongrowing** aquatic organisms including, finfish, aquatic molluscs, crustaceans and plants, crocodiles, alligators, amphibians for final consumption, ornamental or other purposes.

Exclusions:

- Catches of fish, molluscs and crustaceans and aquatic plants killed, caught trapped or collected for all commercial, recreational and subsistence purposes are classified and under Class 051 as capture fisheries.
- Production from restocked water bodies should be classed under 051 capture fisheries

Since it is proposed that the operation of ‘Frog farms” is part of aquaculture, section 012 0122 “other animal farming, production of animal products n.e.c” should be amended to <u>exclude</u> frog farming.

Table 1 : Classification proposed for various aquaculture and capture fisheries practices

PRODUCTION FROM:	DESIGNATION		
	AQUACULTURE	CAPTURE FISHERIES	
		Enhanced	Traditional
Hatcheries	•		
Managed grow-out sites for organisms reared from fry, spat and juveniles:			
- Ponds	•		
- Tanks	•		
- Raceways	•		
- Cages	•		
- Pens	•		
- Barrages	•		
- Integrated vallicoltura production	•		
- Private, tidal ponds (tambaks)	•		
- Poles, ropes and net bags for molluscs	•		
- Aquatic plants from planted or suspended facilities	•		
Stocked lakes, dams, reservoirs and rivers:			
- with additional enhancement (predator control, engineering and/or fertilization etc.)		•	
- modifications, with exploitation rights		•	
- no other intervention, without exploitation rights		•	
Unstocked lakes, dams, reservoirs and rivers:			
- with enhancement (fertilization and/or predator control habitat modification), exploitation with or without rights		•	
Rice-fish practice:			
- from stocked rice-paddy	•		
- from unstocked rice-paddy			•
Brush parks:			
- managed over time and with other enhancement rights		•	
- harvested on an install-and-harvest basis			•
Fish aggregating devices			•
Holding facilities for live captured organisms of marketable size held for a few months (e.g. tuna, lobsters, crabs)			•
Ranching		•	
Artificial reefs with or without exploitation rights		•	
Recreational fisheries:			
- privately owned recreational riverine fisheries			•
- public water bodies			•
Open access waters with or without exploitation rights			•

2. Note on the development of the ISSCFV by vessel type and proposal to make revisions

Collection of data on the world fishing fleet has been included in FAO statistical activities since the very beginning and fishing craft data were published in the first volume of the FAO Yearbooks in 1947. Statistics of vessels and craft were presented on a country basis as an assemblage of whatever statistics were available nationally. The array of fleet statistics varied greatly with countries and type of fishing fleet.

Based on work done by CWP in 1969 and 1971, the criteria of the International Standard Statistical Classification of Fishing Vessels (ISSCFV) were published by FAO in 1973[12]. The paper included considerations on the need for the general definition of fishing fleet and fishery fleet and proposed classification criteria based on different parameters:

- classification by GRT categories
- classification by the hold capacity
- classification by method of propulsion
- classification by the length of the hull
- classification by nationality and flag

Based on the work of an Ad Hoc Working Group, convened in June 1974, a report on fishing craft statistics[13] was published in July 1974; the report referred to the OECD experiment of compiling a register for vessels above 100 GRT. It also included a Provisional List of Fishing Craft, which identified 7 major groups of craft, as well as a second classification level according to vessel type (Table 1).

Two years later, in July 1976, a Revision was published of FI Circ. 429[14], incorporating the 1974 Working Group Report appendices and in particular the *Classification of fishing vessels by type of craft*; Eurostat supported the addition to the criteria of the age of vessels and proposed:

- classification by age groups

In September 1976, a joint consultation of Eurostat, FAO and OECD on fishing fleet statistics was called to harmonize and improve methods, definitions and classifications and avoid duplications in agencies work. The meeting noted that FAO had to postpone the development of a harmonized tabulation, but would continue to collect nationally compiled data on fishing vessels for publication in regular bulletins. The statistical work on the harmonization of fishing vessels, gears, fishing effort and fishermen statistics of the joint consultation was published by FAO in December 1976[15]. Appendix 6 reproduced the List comprising 7 types of vessels (left column in Table 1), without any alterations.

[12] FAO FI Circ 429 FIES/C429 Notes on International Classifications and Definitions used in Fishing Fleet, Fishing Gear and Fishing Effort Statistics, Rome, October 1973 (1st draft)
[13] FAO Fishery Circular N. 612, FIPS/C612 Report of Ad Hoc Working Group on Fishing Craft Statistics 24-26 June 1974, Rome. July 1974
[14] FAO FI Circular N. 429 Rev 1, FIPS/C429 Rev. 1, Notes on International Classifications and Definitions used in Fishing Fleet, Fishing Gear and Fishing Effort Statistics, Rome, July 1976 (2nd Draft)
[15] FAO Fishery Circular N. 429 Rev 2 Notes on International Classifications and Definitions used in Fishing Fleet, Fishing Gears, Fishing effort and Fishermen Statistics, Rome, December 1976

Table 1: Provisional List Of Fishing Craft
(1974 and 1976,Appendix 6 in FAO Fishery Circular FIPS/C429 Rev 2)

1 **Trawlers**		
	1.1	Otter trawlers
	1.2	Pair trawlers
	1.3	Beam trawlers
	1.4	Double rig trawlers
	1.5	Dredgers
	1.6	Others
2 **Purse seiners and seiners**		
	2.1	Purse seiners
	2.2	Seiners (surface fishing without purse line)
	2.3	Bottom seiners (including Danish/Scottish)
	2.4	Beach seiners
	2.5	Others
3 **Gill netters**		
4 **Liners**		
	4.1	Hand liners
	4.2	Long liners
	4.3	Pole liners
	4.4	Trollers
5 **Trap setters**		
6 **Other fishing craft not spec. elsewhere**		
7 **Fishing support vessels**		
	7.1	Factory/mothership
	7.2	Fish carriers
	7.3	Training vessels
	7.4	Fishery research vessels
	7.5	Hospital ships
	7.6	Fishery protection vessels

The CWP 9 Session (Dartmouth, Canada, August 1977) approved the ISSCFV by GRT Categories.

After discussion of gear, effort and fishermen statistics at the CWP 10 Session (Madrid, July 1980)[16], FAO published for the first time in 1981 *world harmonized fishery fleet statistics*[17]. The publication includes in Appendix 3 the ISSCFV by vessel type, and in Appendix 2 a simplified list (summary list) agreed between FAO and Eurostat defining only the major vessel types –which largely corresponds to the 1974 and 1976 proposals (see left column of Table 1). The new simplified list suggested is an expansion of Table 1 for seiners and long-liners and introduces details in the summary list types of non-fishing vessels. The second level of classification instead, departs from essentially catching gear to technology and processing equipment.

[16] Notes on International classifications and definitions used in fishing gear, fishing effort and fishermen statistics, CWP-10/19, March 1980 (mimeo)
[17] FAO Fishery Circular N. 731 Fishery Fleet Statistics 1970-1978, FAO Rome 1981

Table 2: International Standard Classification of Fishery Vessels by Vessel type (FAO 1981)

Simplified list

01	Trawlers		
		0121	Stern trawlers- freezers
		0122	Stern trawlers- wet fish
		0123	Side trawlers- freezers
		0124	Side trawlers- wet fish
		0125	Trawlers, nei
02	Purse seiners		
		0228	Purse seiners- tuna
		0229	Purse seiners-nei
03	Seiners other		
04	Gill netters		
05	Trap setters		
06	Long liners		
		0626	Long liners -tuna
		0627	Long liners, nei
07	Liners nei		
08	Multipurpose vessels		
09	Other fishing vessels		
10	Factory motherships		
11	Fish carriers		
12	Fishery research and protection vessels		
13	Non-fishing vessels nei		
99	Not known		

Source: FAO Fisheries Circular No. 731, Fishery Fleet Statistics 1970-78, Rome 1981

The CWP 12 Session (Copenhagen, Denmark, 25 July-1 August 1984) discussed and approved a proposal based on the work of a consultant[18], which would be later published by FAO as part of Technical Paper 267. It was specified that the proposed classification was a development of earlier classifications and the codes assigned had been selected to avoid confusion with fishing gear category codes. The only agency coding vessel categories was ICCAT. The CWP approved the classification proposed by the consultant with slight modifications to take into account ICCAT comments (Appendix IV in CWP 12 Session Report). The ISSCFV by Vessel Type with standard abbreviations and codes was appended to the FAO Bulletin of Fishery Statistics n. 27 published in 1985.

At the same session the CWP Secretariat introduced a paper (CWP- 12/21)[19] including the ISSCFV by Vessel Type, with some FAO proposals for modification, which however indicated numerically different vessel codes and no standard abbreviation. This discrepancy between two documents on the same subject was noted by ICCAT. The classification in CWP-12/21 is very close to the ISSCFV appearing in the FAO Bulletin of Fishery Statistics "Fishery Fleet" from N. 28 (1988) onwards.

[18] W. Orszulok – Definition and classification of fishery vessel categories. Paper presented at CWP12 Denmark 1984, CWP12/25, 61 pages (mimeo).
[19] Fishing Fleet Statistics – paper presented at CWP 12-, Denmark, CWP-12/21.

The FAO Technical Paper "Definition and classification of fishery vessel type" published in 1985, (FIDI/FIIT T 267) was largely based on W. Orszulok's CWP –12/25 paper. The document mentions that two types of fishery fleet statistics might be considered:

1) based on the structural characteristics of the vessel
2) based on the fishing gear used

and that the Technical Paper retained the second concept, based on the gear used. In Appendix 1 of the paper it provides the ISSCFV classification, presented here in Table 3, and also included in the CWP-12 Report and in FAO FI Statistical Bulletin N.27.

The FAO Bulletin of Fishery Statistics n. 28 (Rome, 1988) in Appendix 2, indicates an ISSCFV with several imperfections (e.g. the title is "Fishing Vessels" instead of "Fishery Vessels") and changes (e.g. not all the codes of the "simplified" classification correspond, the coding system has been changed to abolish the dots between digits, the Standard Abbreviations are not indicated) which cannot be traced any longer, because the archived documentation in FAO at present is from 1992 on-wards.

In practice, FIDI has been referring in its statistical publications to paper CWP-12/21, whereas in joint work with FII in publishing classificaitons in technical papers on vessels and gears types [20] has been referring to paper CWP-12/25, presented at the same CWP session.

[20] FIDI/FIIT – Definition and classification of fishery vessel types, FAO T.P. 267, 1985
C. Nédelec and J. Prado –Definition and classification of fishing gear categories, FAO TP 222 Rev.1, 1990 (reprinted 1999)

Table 3: ISSCFV by vessel type

CWP 12,1984
FAO Bull. of FI Stat. N. 27, 1985
FAO Tech. Paper 267, 1985

Code		Code		Std. Abbrev.
	FISHING VESSELS			
01.0.0	TRAWLERS			TO
		01.1.0	Side trawlers	TS
		01.1.1	Side trawlers wet-fish	TSW
		01.1.2	Side trawlers freezer	TSF
		01.2.0	Stern trawlers	TT
		01.2.1	Stern trawlers wet-fish	TTW
		01.2.2	Stern trawlers freezer	TTF
		01.2.3	Stern trawlers factory	TTP
		01.3.0	Outrigger trawlers	TU
		01.9.0	Trawler nei	TOX
02.0.0	SEINERS			SO
		02.1.0	Purse seiners	SP
		02.1.1	North American type	SPA
		02.1.2	European type	SPE
		02.1.3	Tuna purse seiners	SPT
		02.2.0	Seiner netters	SN
		02.9.0	Seiner nei	SOX
03.0.0	DREDGERS			DO
		03.1.0	using boat dredge	DB
		03.2.0	using mechanical dredge	DM
		03.9.0	dredgers nei	DOX
04.0.0	LIFT NETTERS			NO
		04.1.0	using boat operated net	NB
		04.9.0	lift netters nei	NOX
05.0.0	GILLNETTERS			GO
06.0.0	TRAP SETTERS			WO
		06.1.0	Pot vessels	WOP
		06.9.0	Trap setters nei	WOX
07.0.0	LINERS			LO
		07.1.0	Handliners	LH
		07.2.0	Longliners	LL
		07.2.1	Tuna longliners	LLT
		07.3.0	Pole and line vessels	LP
		07.3.1	Japanese type	LPJ
		07.3.2	American type	LPA
		07.4.0	Trollers	LT
		07.9.0	Liners nei	LOX
08.0.0	VESSELS USING PUMPS FOR FISHING			PO
09.0.0	MULTIPURPOSE VESSELS			MO
		09.1.0	Seiner-handliners	MSN
		09.2.0	Trawler-purse seiners	MTS
		09.3.0	Trawler-drifters	MTG

		09.9.0	Multipurpose vessels nei	MOX
10.0.0	RECREATIONAL FISHING VESSELS			RO
49.0.0	FISHING VESSELS NOT SPECIFIED			FX
	NON FISHING VESSELS			
11.0.0	MOTHERSHIPS			HO
		11.1.0	Salted-fish motherships	HSS
		11.2.0	Factory motherships	HSF
		11.3.0	Tuna motherships	HST
		11.4.0	Motherships for two-boat purse seining	HSP
		11.9.0	Motherships nei	HOX
12.0.0	FISH CARRIERS			FO
13.0.0	HOSPITAL SHIPS			KO
14.0.0	PROTECTION AND SURVEY VESSELS			BO
15.0.0	FISHERY RESEARCH VESSELS			ZO
16.0.0	FISHERY TRAINING VESSELS			CO
99.0.0	NON-FISHING VESSELS nei			VOX

The FAO Statistical Bulletin on Fishery Fleets from No. 28 (1988) until No. 35 (1998) included the classification shown in Table 4.

Table 4: ISSCFV by Vessel type in FAO Bulletin of Fishery Statistics Nos. 28 (1988)-35 (1998)

1	**Trawlers**
1.02	Side Trawlers
1.1	Stern trawlers
1.2	Factory Stern Trawlers
1.21	Freezers Stern Trawlers
1.22	Wet-fish Stern Trawlers
1.23	Freezers Side Trawlers
1.24	Wet-fish Side Trawlers
1.25	Outrigger Trawlers
1.26	Freezers trawlers nei
1.27	Wet-fish trawlers nei
1.28	Beam trawlers
1.99	Trawlers nei
2	**Purse Seiners**
2.28	Tuna Purse Seiners
2.29	Purse Seiners, nei
3	**Other seiners**
3.1	Seine netters
3.9	Seiners nei
4	**Gill Netters**
4.1	Drifters
4.9	Gill netter nei
5	**Trap Setters**
5.1	Pot vessels
5.9	Trap setters nei
6	**Long Liners**
6.23	Freezers Long Liners
6.24	Factory Long Liners
6.25	Wet-fish Long Liners
6.26	Tuna Long Liners
6.27	Long Liners nei
7	**Other Liners**
7.05	Jigging Line vessels
7.1	Handliners
7.2	Pole and Line vessels
7.3	Trollers
7.9	Liners nei
8	**Multipurpose Vessels**
8.1	Seiners-handliners
8.2	Trawlers-purse seiners
8.3	Trawlers-drifters
8.9	Multipurpose vessels nei
9	**Other fishing vessels**
9.1	Dredgers
9.11	Dredgers using boat dredge
9.12	Dredgers using mechanical dredge
9.19	Dredgers nei
9.2	Lift netters
9.21	Lift netters using boat operated net
9.29	Lift netters nei
9.3	Vessels using pump for fishing
9.35	Platforms for molluscs culture
9.4	Recreational fishing vessels
9.9	Fishing vessels nei
10	**Motherships**
10.32	Factory Motherships
10.4	Salted-fish motherships
10.5	Tuna motherships
10.6	Motherships for two-boat purse seining
10.9	Motherships nei
11	**Fish Carriers**
12	**Other non-fishing vessels**
12.1	Hospital ships
12.2	Protection and survey vessels
12.3	Fishery research vessels
12.4	Fishery training vessels
12.9	Non-fishing Vessels Nei

The digits before the dot indicate the **summary vessel types**, but the numbers after the dot are sequential, whereas in Bulletin N. 27 the digits following the first dot referred to other classification levels.

In 1999 FAO/FIDI revised the ISSCFV classification criteria from GRT classes to length of hull classes and modified the simplified list of vessels by type to read as in Table 5.

Table 5: ISSCFV of Fishing Vessels by Type
attachment to FISHSTAT FF (FAO, 1999)

Code	*FISHING VESSELS*	*Code*	*FISHING VESSELS*
01.00	**TRAWLERS** Factory Trawlers Freezer Trawlers Wet-fish Trawlers Outrigger Trawlers Beam Trawlers Trawlers nei	06.00	**LONG LINERS** Freezer Long Liners Factory Long Liners Wet-fish Long Liners Long Liners nei
02.00	**PURSE SEINERS** Tuna Purse Seiners Purse seiners nei	07.00	**OTHER LINERS** Jigging Line vessels Handliners Pole and Line vessels Trollers Liners nei
03.00	**OTHER SEINERS** Seine Netters Seiners nei	08.00	**MULTIPURPOSE VESSELS** Trawlers-purse seiners Multipurpose vessels nei
04.00	**GILL NETTERS**	09.10	**DREDGERS**
05.00	**TRAP SETTERS** Pot vessels Trap setters nei	9.00	**OTHER FISHING VESSELS** Lift netters Lift net. using boat operated net Lift netters nei Vessels using pump for fishing Platforms for mollusc culture **Recreational fishing vessels** Fishing vessels nei

Conclusions

In the context of the FIGIS initiative, a number of possible partners have expressed strong interest in being able to refer to international gear and fishing vessels classifications and FIGIS case studies clearly demonstrated the need for a well established and agreed classification system.

There are two ISSCFV equally "official" used in FIDI and FII publications. It is desirable to unify them.

The complete ISSCFV by vessel type has never been used by FIDI to compile world fleet data. The data collection, first by GRT classes first and later by length-over-all, has been done exclusively on the basis of the **simplified (or summary) list by vessel types**. The simplified list has been slightly altered over the years. Coding also has been manipulated; some of the latest slight changes in Table 5 are discrepant with the summary list widely disseminated by FAO through T.P. 267 of 1985, T.P. 222 Rev 1 of 1990 and its reprint in 1999.

The CWP-12 Session in 1984 discussed thoroughly fleet statistics harmonization. However, most CWP agencies are no longer directly concerned with fleet statistics: OECD does no longer hold a Vessel Register, Eurostat does no longer hold full responsibility for its Register, ICES does no longer compile effort statistics by main vessel types etc.

The ISSCFV by LoA classes was adopted in 1999 by FIDI as a criterion to collect fleet data. Its implementation has not been discussed at CWP. It is desirable to do so, although an agreed common list among agencies is no longer critical.

Fleet statistics have recently been discussed in FAO by FIDI and FIIT, within the framework of FIGIS development.

The meeting agreed that a new draft proposal should be worked out according to the following principles:

- the ISSCFV classification has to reflect the state of the art (e.g. side trawlers are obsolete and few are still in use) ;
- the classification should primarily serve statistical needs, while allowing other users to link their local vessel types to categories identified in the classification;
- the vessels classification should be structured along two levels that reflect substantial differences in vessel profiles, i.e. deck arrangements, major equipments and motorization. A third level (or even additional ones) would be useful to list typical "examples" of combinations of the first and second category level (e.g. outrigger trawler is an example of an otter trawler) which was apparent in the coding structure of ISSCFV in Table 3. Description of fishing techniques operated by vessel types, listed in the third level, will provide additional information on the associations existing between the vessel types, the gear used, the targeted species and where applicable the on board catch handling modes.
- the decked / undecked major distinction applies to all vessel categories and should be retained
- official names will be mostly taken from the FIIT proposal (see Table 6), but the need for synonyms has been stressed.
- the classificaiton should be limited to fishing vessels; all fishery associated vessels should not be retained in fishing fleet statistics
- the revision does not result in major structural changes

- the inclusion of "Multipurpose vessels" is not very meaningful, and raises the question of which vessels are in the group "other vessels" (which often is included for statistical convenience to classify "unspecified " fleet compostions).

Table 6: FIIT Vessel classification

TRAWLERS	LONG LINERS
Otter trawler	Auto liner
Pair trawler	Manual liner
Beam trawler	
PURSE SEINERS	LINE VESSELS
American seiner	Jigger vessels
European seiner	Pole and Line vessels
Drum seiner	American style
	Japanese style
	Trollers
SEINERS	GILL NETTERS
Anchor seiner	Drifter
Scottish seiner	Set netter
	Lift netter
TRAP SETTERS	DREDGERS
Pot vessels	
Trap setters	

References:

PUBLICATIONS of FAO FLEET STATISTICS as Statistical Bulletins

- FAO Bulletin of Fishery Statistics N**. 14** *Fishing Fleet Statistics* 1966, Rome 1967
- FAO Bulletin of Fishery Statistics N**. 15** *Fishing Fleet Statistics* 1967, Rome 1969
- FAO Bulletin of Fishery Statistics N. **23,** *Fishing Fleet Statistics 1969,* Rome 1971
- Fishery Circular FIDI/C731 *"Fishery Fleet Statistics 1970-1978*", Rome 1981
- FAO Bulletin of Fishery Statistics N. **27**, *Fishery Fleet Statistics 1970, 1975, 1977-81,* Rome 1985
- FAO Bulletin of Fishery Statistics N. **28**, *Fishery Fleet Statistics 1970, 1975, 1977-86,* Rome 1988
- FAO Bulletin of Fishery Statistics N. **30**, *Fishery Fleet Statistics 1970, 1975, 1980-89,* Rome 1991
- FAO Bulletin of Fishery Statistics N. **34**, *Fishery Fleet Statistics 1970, 1975, 1980, 1984-1992,* Rome 1994
- FAO Bulletin of Fishery Statistics N. **35**, *Fishery Fleet Statistics 1970, 1975, 1980, 1985, 1989-95,* Rome 1998

3. Proposal for a revision of the ISSCAAP groups of the Marine Fishes division

A bit of history

The International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) is organized into 9 divisions that are further split into 50 groups (see Table 1). The first eight divisions are dedicated to major groups of marine and freshwater animals, the ninth division is for aquatic plants. The present classification has had few and minor changes respect to that published in the 1969 issue of the "FAO Yearbook of Fishery Statistics, Catch and Landings" which had been substantially modified respect to the previous issue of the Yearbook.

A proposal for a further revision of the ISSCAAP's divisions and groups was presented by Mr. Gertenbach, FAO Senior Fishery Statistician, at the 8th CWP Session (Paris, France, 12-20 September 1974). The major change proposed was an increase of the divisions from 9 to 25. The CWP suggested to adopt a conservative approach and this revision was not implemented. Sixteen years later, at the 14th Session of the CWP (Paris, France, 5-9 February 1990), another revision of the ISSCAAP groups was discussed on the basis of a paper prepared by a consultant (Mr. Bruce). This revision focused on a proposal for the sub-division of the ISSCAAP group 33 as this group already contained more than one fourth of the total species items included in the FAO Yearbook. Mr. Bruce suggested to split the group 33 into two groups, one including the basses and their allies (the Perciform fishes with demersal habits) and the other the remainder of the group (redfishes, congers and minor non-related groups) but also this proposal was not adopted by the CWP.

Present situation of ISSCAAP groups

ISSCAAP groups correspond mostly to homogenous taxonomic aggregations (see Table 2) or are based on biological and environmental characteristics of the species (e.g. diadromous fishes, freshwater crustaceans, freshwater molluscs, etc.). A few misplaced species items have been identified (e.g. not Clupeiformes species in group 35) and will be correctly repositioned.

In the 2001 release of the ASFIS species list, following the closure of the 1999 FAO databases on fishery production, there are 1,705 species items that have been classified into an ISSCAAP group. Of these species items, 1,205 have FAO capture statistics, 102 have exclusively aquaculture statistics while the remaining 398 have received an ISSCAAP classification upon a request of fishery commissions or member countries to classify the species item.

Table 3 shows the number of species assigned to each of the 50 groups and their percentages on the total. All the groups range from 0.1 to 6.8% (1 to 89 species items) of the total species items having statistics except for the group 33 which includes about 25% of the total classified species.

As said above, the problem of the great amount of species items classified into the group 33 was already addressed at the CWP-14 but no final decision was taken on this issue. The necessity of a revision of ISSCAAP groups in the Marine Fishes division, in particular of group 33, has been growing in recent years together with the increased number of studies which have analyzed the FAO capture database on the basis of the ISSCAAP groups. Very

often scientists analyzing the FAO database are interested in aggregating the ISSCAAP groups according to broader ecological characteristics of the species. The most commonly used aggregations are "demersal" and "pelagic". Usually, ISSCAAP groups 31, 32 and 33 are considered as including demersal fish species, groups 34, 35, 36 and 37 are classified as pelagic, while group 38 (sharks, rays, chimaeras) that includes both pelagic and demersal species and the group 39 (miscellaneous marine fishes) are generally left aside.

Classification of group 31 (flounders, halibut, soles) and 32 (cods, hakes, haddocks) as demersal and of groups 35 (herrings, sardines, anchovies), 36 (tuna, bonitos, billfishes) and 37 (mackerel, snoeks, cutlassfishes) as pelagic is not questionable. The group 33 (redfishes, basses, congers) and the group 34 (jacks, mullets, sauries) have become throughout the years the groups where demersal fishes and pelagic fishes which not fitted in the other more specific groups were classified respectively. This is confirmed by the inclusion of two generic species items (i.e. "Demersal percomorphs nei" and "Pelagic percomorphs nei") in the corresponding groups.

The main inconsistency in considering the group 34 as a repository of "Miscellaneous pelagic fishes" is the inclusion of mullets (mentioned even in the title as a major representative of the group), threadfins and lanternfishes. Mullets prefer shallow coastal waters where they may be found in all habitats but having an omnivorous diet, which often includes also filtering detritus, can be hardly classified as "pelagic". Threadfins are most common in muddy coastal and estuarine waters. Lanternfishes (family Myctophidae) are meso-bathypelagic fishes but are considered as a deep water resource and hence would be better to group them with demersal species.

Revision of the ISSCAAP groups of the marine fishes division

The revision of ISSCAAP groups proposed here tries to meet the needs of the users of the FAO fishery statistics by providing a breakdown of this very heterogeneous group into more homogeneous groups without disrupting the overall classification and associated database field structure. For example, the possible option of splitting up the group 33 into two groups called "33A" and "33B" would affect the structure of the ISSCAAP field in the databases.

To explore the feasibility of a hypothetical revision, the species items presently in the group 33 have been classified as coastal fishes or demersal fishes. Coastal fishes are obviously those living at lower depths on the continental shelf while demersal fishes are found on the outer shelf, on the slope or in deep water. The creation of a new group including only coastal fishes and a better identification of demersal species would provide additional information to the users of the FAO capture database.

In Table 4 are listed the families of the species items assigned to each one of the two categories. It has been tried to classify all the species of a family as much as possible in the same category. Only in two families (i.e. Serranidae and Nototheniidae) some species have been classified as demersal while most of the others are coastal. In doubtful cases it has been considered in which environment/depth the species is mainly caught and for wide-ranging species it has been taken into account the characteristics of the species in the countries reporting statistics. Three species items (*Lactarius lactarius*, *Mola mola* and *Trachipterus* spp) have been recognized as pelagic species.

Therefore, the simplest but satisfactory solution has been pursued to redistribute these newly classified species items to ISSCAAP groups. Two possible options are presented in Table 5 (ISSCAAP groups affected by a change of the title or by an addition/removal of species items are in bold and underlined).

Option A: 9 groups of marine fishes

Group 33 would be named "Miscellaneous demersal fishes" while group 34 becomes "Miscellaneous coastal fishes" and all coastal species are moved from group 33 to 34. All species presently in group 34, except lanternfishes (moved to the new group 33), mullets and threadfins are joined to mackerels into a new group 37 called "Miscellaneous pelagic fishes". The move of snoeks and cutlassfishes from group 37 to the new group 33 could be also considered.

Option B: 10 groups of marine fishes

A new group numbered "30" and called "Miscellaneous coastal fishes" would be created. This group would include all the species classified as coastal fishes plus mullets and threadfins from group 34. Groups 33 and 34 should be renamed "Miscellaneous demersal fishes" and "Miscellaneous pelagic fishes" respectively. Please note that all the other divisions have "1" as first number after the division number (e.g. 11, 21, 31, 41, etc.) and the new group "30" would be an inconsistency but probably of minor importance.

In Table 6 are shown the number of species that would be assigned to each of the proposed group according the two different options. The number of species presently in group 33 would be significantly decreased although the new group "Miscellaneous coastal fishes" would remain the first group in number of species.

In accordance with both the above options, the name of the group 39 should be changed from "Miscellaneous marine fishes" to "Marine fishes not identified".

Changes in other divisions

Two changes are also proposed for the names of the crustacean groups 42 and 44 to better represent the most important species included in the two groups (see Table 7).

Table 1: Present ISSCAAP classification

Code	DIVISION/Group of species
1	FRESHWATER FISHES
11	Carps, barbels and other cyprinids
12	Tilapias and other cichlids
13	Miscellaneous freshwater fishes
2	DIADROMOUS FISHES
21	Sturgeons, paddlefishes
22	River eels
23	Salmons, trouts, smelts
24	Shads
25	Miscellaneous diadromous fishes
3	MARINE FISHES
31	Flounders, halibuts, soles
32	Cods, hakes, haddocks
33	Redfishes, basses, congers
34	Jacks, mullets, sauries
35	Herrings, sardines, anchovies
36	Tunas, bonitos, billfishes
37	Mackerels, snoeks, cutlassfishes
38	Sharks, rays, chimaeras
39	Miscellaneous marine fishes
4	CRUSTACEANS
41	Freshwater crustaceans
42	Sea-spiders, crabs
43	Lobsters, spiny-rock lobsters
44	Squat-lobsters
45	Shrimps, prawns
46	Krill, planktonic crustaceans
47	Miscellaneous marine crustaceans
5	MOLLUSCS
51	Freshwater molluscs
52	Abalones, winkles, conchs
53	Oysters
54	Mussels
55	Scallops, pectens
56	Clams, cockles, arkshells
57	Squids, cuttlefishes, octopuses
58	Miscellaneous marine molluscs
6	WHALES, SEALS AND OTHER AQUATIC MAMMALS
61	Blue-whales, fin-whales
62	Sperm-whales, pilot-whales
63	Eared seals, hair seals, walruses
64	Miscellaneous aquatic mammals
7	MISCELLANEOUS AQUATIC ANIMALS
71	Frogs and other amphibians
72	Turtles
73	Crocodiles and alligators
74	Sea-squirts and other tunicates
75	Horseshoe crabs and other arachnoids
76	Sea-urchins and other echinoderms
77	Miscellaneous aquatic invertebrates
8	MISCELLANEOUS AQUATIC ANIMAL PRODUCTS
81	Pearls, mother-of-pearl, shells
82	Corals
83	Sponges
9	AQUATIC PLANTS
91	Brown seaweeds
92	Red seaweeds
93	Green seaweeds
94	Miscellaneous aquatic plants

Table 2: Present taxonomic composition of the ISSCAAP groups

Code	ISSCAAP group	Families	Orders or other high taxonomic levels
11	Carps, barbels and other cyprinids	Cyprinidae, Catostomidae, Cobitidae	CYPRINIFORMES
12	Tilapias and other cichlids	Cichlidae	PERCOIDEI
13	Miscellaneous freshwater fishes	35 families	13 ORDERS + PISCES MISCELLANEA
21	Sturgeons, paddlefishes	Acipenseridae, Polyodontidae	ACIPENSERIFORMES
22	River eels	Anguillidae	ANGUILLIFORMES
23	Salmons, trouts, smelts	5 families	SALMONIFORMES
24	Shads	Clupeidae, Engraulidae, Pristigasteridae	CLUPEIFORMES
25	Miscellaneous diadromous fishes	4 families	3 ORDERS + PISCES MISCELLANEA
31	Flounders, halibuts, soles	8 families	PLEURONECTIFORMES
32	Cods, hakes, haddocks	6 families	GADIFORMES
33	Redfishes, basses, congers	92 families	22 ORDERS
34	Jacks, mullets, sauries	19 families	10 ORDERS
35	Herrings, sardines, anchovies	6 families (3 to be moved)	CLUPEIFORMES (SALMONIFORMES, ALBULIFORMES & ELOPIFORMES to be moved)
36	Tunas, bonitos, billfishes	Scombridae, Istiophoridae, Xiphiidae	SCOMBROIDEI
37	Mackerels, snoeks, cutlassfishes	Scombridae (Scombrini), Gempylidae, Trichiuridae	SCOMBROIDEI
38	Sharks, rays, chimaeras	27 families	8 ORDERS + PISCES MISCELLANEA
39	Miscellaneous marine fishes	0 families	PISCES MISCELLANEA
41	Freshwater crustaceans	6 families	3 ORDERS + CRUSTACEA MISCELL.
42	Sea-spiders, crabs	6 families	BRACHYURA
43	Lobsters, spiny-rock lobsters	4 families	REPTANTIA
44	Squat-lobsters	Galatheidae, Lithodidae	ANOMURA
45	Shrimps, prawns	8 families	NATANTIA
46	Krill, planktonic crustaceans	Euphausiidae	EUPHAUSIACEA
47	Miscellaneous marine crustaceans	5 families	3 ORDERS + CRUSTACEA MISCELL.
51	Freshwater molluscs	Corbiculidae	BIVALVIA + MOLLUSCA MISCELL.
52	Abalones, winkles, conchs	8 families	GASTROPODA
53	Oysters	Ostreidae	BIVALVIA
54	Mussels	Mytilidae	BIVALVIA
55	Scallops, pectens	Pectinidae	BIVALVIA
56	Clams, cockles, arkshells	11 families	BIVALVIA + MOLLUSCA MISCELL.
57	Squids, cuttlefishes, octopuses	4 families	CEPHALOPODA
58	Miscellaneous marine molluscs	0 families	MOLLUSCA MISCELLANEA.
61	Blue-whales, fin-whales	Balaenopteridae	MYSTICETI
62	Sperm-whales, pilot-whales	5 families	ODONTOCETI
63	Eared seals, hair seals, walruses	Odobenidae, Otariidae, Phocidae	PINNIPEDIA
64	Miscellaneous aquatic mammals	Trichechidae	SIRENIA + MAMMALIA MISCELL.
71	Frogs and other amphibians	Ranidae	ANURA
72	Turtles	Cheloniidae, Emydidae, Trionychidae	TESTUDINES
73	Crocodiles and alligators	Crocodylidae	CROCODILIA
74	Sea-squirts and other tunicates	Pyuridae	ASCIDIACEA
75	Horseshoe crabs and other arachnoids	Limulidae	XIPHOSURA
76	Sea-urchins and other echinoderms	4 families	4 ORDERS
77	Miscellaneous aquatic invertebrates	Rhizostomidae	POLYCHAETA, SCYPHOZOA + INVERTEBRATA AQUAT. MISCELL.
81	Pearls, mother-of-pearl, shells	4 families	BIVALVIA, GASTROPODA + MOLLUSCA MISCELL.
82	Corals	Coralliidae, Tubiporidae	ANTHOZOA
83	Sponges	Spongidae	DEMOSPONGIAE
91	Brown seaweeds	6 families	PHAEOPHYCEAE
92	Red seaweeds	11 families	RHODOPHYCEAE
93	Green seaweeds	Caulerpaceae, Monostromaceae, Ulvaceae	CHLOROPHYCEAE
94	Miscellaneous aquatic plants	Cyperaceae, Oscillatoriaceae, Zosteraceae	ANGIOSPERMAE, CYANOPHYCEAE + PLANTAE AQUAT. MISCELL.

Table 3: Number of species items included in each ISSCAAP group and their percentages on the total

Group's code	Species items represented in FAO statistics		All species items classified	
	no.	percentage	no.	percentage
11	42	3.2%	47	2.8%
12	19	1.5%	25	1.5%
13	75	5.7%	88	5.2%
21	7	0.5%	9	0.5%
22	5	0.4%	5	0.3%
23	31	2.4%	34	2.0%
24	22	1.7%	26	1.5%
25	6	0.5%	8	0.5%
31	45	3.4%	55	3.2%
32	55	4.2%	63	3.7%
33	320	24.5%	419	24.6%
34	89	6.8%	116	6.8%
35	55	4.2%	63	3.7%
36	43	3.3%	61	3.6%
37	18	1.4%	20	1.2%
38	69	5.3%	157	9.2%
39	4	0.3%	4	0.2%
41	17	1.3%	21	1.2%
42	22	1.7%	30	1.8%
43	28	2.1%	33	1.9%
44	12	0.9%	19	1.1%
45	63	4.8%	77	4.5%
46	2	0.2%	8	0.5%
47	7	0.5%	7	0.4%
51	2	0.2%	5	0.3%
52	16	1.2%	23	1.3%
53	16	1.2%	20	1.2%
54	13	1.0%	15	0.9%
55	14	1.1%	18	1.1%
56	44	3.4%	51	3.0%
57	20	1.5%	28	1.6%
58	1	0.1%	1	0.1%
61	7	0.5%	7	0.4%
62	12	0.9%	18	1.1%
63	17	1.3%	19	1.1%
64	2	0.2%	2	0.1%
71	1	0.1%	1	0.1%
72	7	0.5%	7	0.4%
73	12	0.9%	13	0.8%
74	4	0.3%	4	0.2%
75	1	0.1%	1	0.1%
76	9	0.7%	11	0.6%
77	3	0.2%	3	0.2%
81	5	0.4%	9	0.5%
82	8	0.6%	11	0.6%
83	1	0.1%	1	0.1%
91	11	0.8%	13	0.8%
92	17	1.3%	20	1.2%
93	4	0.3%	4	0.2%
94	4	0.3%	5	0.3%
Total	1307	100%	1705	100%

Table 4: Families of the species presently in group 33 classified as coastal fishes or demersal fishes

Coastal fishes	Demersal Fishes
Acanthuridae	Acropomatidae
Ambassidae	Anarhichadidae
Ammodytidae	Anoplopomatidae
Apogonidae	Argentinidae
Ariidae	Ariommatidae
Arripidae	Bathydraconidae
Balistidae	Berycidae
Batrachoididae	Branchiostegidae
Blenniidae	Caproidae
Caesionidae	Centrolophidae
Centracanthidae	Channichthyidae
Centropomidae	Cheilodactylidae
Chaetodontidae	Chlorophthalmidae
Coracinidae	Congridae
Cottidae	Cyclopteridae
Drepanidae	Emmelichthyidae
Ephippidae	Epigonidae
Gerreidae	Gonostomatidae
Gobiidae	Harpagiferidae
Haemulidae	Latridae
Hexagrammidae	Lophiidae
Holocentridae	Macroramphosidae
Hypoptychidae	Muraenesocidae
Kyphosidae	Nototheniidae
Labridae	Ophidiidae
Leiognathidae	Oreosomatidae
Lethrinidae	Pentacerotidae
Lutjanidae	Scorpaenidae
Menidae	Serranidae
Monacanthidae	Sternoptychidae
Moronidae	Trachichthyidae
Mullidae	Trichodontidae
Muraenidae	Triglidae
Nemipteridae	Uranoscopidae
Normanichthyidae	Zeidae
Nototheniidae	
Ostraciidae	
Percichthyidae	
Percophidae	
Pinguipedidae	
Platycephalidae	
Plotosidae	
Pomacanthidae	
Priacanthidae	
Scaridae	
Scatophagidae	
Sciaenidae	
Serranidae	
Siganidae	
Sillaginidae	
Sparidae	
Synodontidae	
Terapontidae	
Tetraodontidae	
Trachinidae	
Zoarcidae	

Table 5: Possible options for the revision of the ISSCAAP group of the Marine Fishes Division

OPTION A

Code	Present ISSCAAP group	Proposed revision	Demersal /Pelagic	Species items to be added	Species items to be removed
31	Flounders, halibuts, soles	Flounders, halibuts, soles	D		
32	Cods, hakes, haddocks	Cods, hakes, haddocks	D		
33	Redfishes, basses, congers	**Miscellaneous demersal fishes**	D	Lanternfishes; snoeks & cutlassfishes	Coastal species from group 33
34	Jacks, mullets, sauries	**Miscellaneous coastal fishes**	D	Coastal species from group 33	All species from group 34 except mullets & threadfins
35	Herrings, sardines, anchovies	Herrings, sardines, anchovies	P		
36	Tunas, bonitos, billfishes	Tunas, bonitos, billfishes	P		
37	Mackerels, snoeks, cutlassfishes	**Miscellaneous pelagic fishes**	P	All species from group 34 except mullets & threadfins	Snoeks & cutlassfishes
38	Sharks, rays, chimaeras	Sharks, rays, chimaeras			
39	Miscellaneous marine fishes	**Marine fishes not identified**			

OPTION B

Code	Present ISSCAAP group	Proposed revision	Demersal /Pelagic	Species items to be added	Species items to be removed
30		**Miscellaneous coastal fishes**	D	Coastal species from group 33 + mullets & threadfins	
31	Flounders, halibuts, soles	Flounders, halibuts, soles	D		
32	Cods, hakes, haddocks	Cods, hakes, haddocks	D		
33	Redfishes, basses, congers	**Miscellaneous demersal fishes**	D	Lanternfishes	Coastal species from group 33
34	Jacks, mullets, sauries	**Miscellaneous pelagic fishes**	P		Mullets, threadfins & lanternfishes
35	Herrings, sardines, anchovies	Herrings, sardines, anchovies	P		
36	Tunas, bonitos, billfishes	Tunas, bonitos, billfishes	P		
37	Mackerels, snoeks, cutlassfishes	Mackerels, snoeks, cutlassfishes	P		
38	Sharks, rays, chimaeras	Sharks, rays, chimaeras			
39	Miscellaneous marine fishes	**Marine fishes not identified**			

Table 6: Numbers of species in the proposed groups according the two options

Code	Proposed revision	Species items represented in FAO statistics	All species items classified
OPTION A			
33	Miscellaneous demersal fishes	109	149
34	Miscellaneous coastal fishes	232	302
37	Miscellaneous pelagic fishes	86	104
OPTION B			
30	Miscellaneous coastal fishes	232	302
33	Miscellaneous demersal fishes	100	139

34	Miscellaneous pelagic fishes	77	94
37	Mackerels, snoeks, cutlassfishes	18	20

Table 7: Proposed changes of name for groups other than marine fishes

Code	Present ISSCAAP group	Proposed revision
11	Carps, barbels and other cyprinids	Carps, barbels and other cyprinids
12	Tilapias and other cichlids	Tilapias and other cichlids
13	Miscellaneous freshwater fishes	Miscellaneous freshwater fishes
21	Sturgeons, paddlefishes	Sturgeons, paddlefishes
22	River eels	River eels
23	Salmons, trouts, smelts	Salmons, trouts, smelts
24	Shads	Shads
25	Miscellaneous diadromous fishes	Miscellaneous diadromous fishes
41	Freshwater crustaceans	Freshwater crustaceans
42	Sea-spiders, crabs	**Crab, sea-spiders**
43	Lobsters, spiny-rock lobsters	Lobsters, spiny-rock lobsters
44	Squat-lobsters	**King crabs, squat-lobsters**
45	Shrimps, prawns	Shrimps, prawns
46	Krill, planktonic crustaceans	Krill, planktonic crustaceans
47	Miscellaneous marine crustaceans	Miscellaneous marine crustaceans
51	Freshwater molluscs	Freshwater molluscs
52	Abalones, winkles, conchs	Abalones, winkles, conchs
53	Oysters	Oysters
54	Mussels	Mussels
55	Scallops, pectens	Scallops, pectens
56	Clams, cockles, arkshells	Clams, cockles, arkshells
57	Squids, cuttlefishes, octopuses	Squids, cuttlefishes, octopuses
58	Miscellaneous marine molluscs	Miscellaneous marine molluscs
61	Blue-whales, fin-whales	Blue-whales, fin-whales
62	Sperm-whales, pilot-whales	Sperm-whales, pilot-whales
63	Eared seals, hair seals, walruses	Eared seals, hair seals, walruses
64	Miscellaneous aquatic mammals	Miscellaneous aquatic mammals
71	Frogs and other amphibians	Frogs and other amphibians
72	Turtles	Turtles
73	Crocodiles and alligators	Crocodiles and alligators
74	Sea-squirts and other tunicates	Sea-squirts and other tunicates
75	Horseshoe crabs and other arachnoids	Horseshoe crabs and other arachnoids
76	Sea-urchins and other echinoderms	Sea-urchins and other echinoderms
77	Miscellaneous aquatic invertebrates	Miscellaneous aquatic invertebrates
81	Pearls, mother-of-pearl, shells	Pearls, mother-of-pearl, shells
82	Corals	Corals
83	Sponges	Sponges
91	Brown seaweeds	Brown seaweeds
92	Red seaweeds	Red seaweeds
93	Green seaweeds	Green seaweeds
94	Miscellaneous aquatic plants	Miscellaneous aquatic plants

4. The ASFIS list of species for fishery statistics purposes

Introduction

Upon receipt for the first time of production statistics for a species item, the FAO Fishery Information, Data and Statistics Unit (FIDI) had to assign new codes before entering the corresponding production data in the statistical databases. Three types of codes are assigned to each species item: 1) ISSCAAP code; 2) taxonomic code; and 3) 3-alpha code. The ISSCAAP code is assigned according to the FAO 'International Standard Statistical Classification for Aquatic Animals and Plants' (ISSCAAP) which divides commercial species into 50 groups on the basis of their taxonomic and ecological characteristics. The taxonomic code is used by FAO for a more detailed classification of the species items and for sorting them out within each ISSCAAP group. The 3-alpha identifier is a unique code made of three letters that is widely used for the exchange of data with national correspondents and among fishery agencies.
Furthermore, FIDI often receives requests from national institutions and fishery commissions to provide 3-alpha codes to species items of local interest. In order to facilitate such processes, taxonomic and 3-alpha codes have been assigned to a broader number of species. The ASFIS list has been made available on the Internet to provide external users with a standardized codification system covering most of the species items related to fishery activities.

Characteristics of the list

The list is a part of the Aquatic Sciences and Fisheries Information System (ASFIS) which includes among others also the Aquatic Sciences and Fisheries Abstracts (ASFA). The present version of the ASFIS list (released in March 2001) includes 10,301 species items. As there are more than 17,500 possible valid combinations of the 26 characters of the English alphabet forming the 3-alpha code, the database can be further expanded using the same codification system. Only FAO-FIDI, being the manager of the list, can create or modify codes.

Each species item stored in a record has a taxonomic code, a 3-alpha code, a scientific name, taxonomic classification at family and at a higher taxonomic level. About 75% percent of the records have an English name, 38% a French name and 34% a Spanish name; only those of species items for which there are production statistics can be considered as official FAO names. When statistics are reported for the first time, besides the three major codes, FAO assigns an English, French and Spanish names to the new species item.
The ISSCAAP code is provided only for species items having production statistics in the FAO databases, as well as to about four hundred other items to which it was assigned on requests by fishery commissions or member countries; the code is assigned to a record as soon as statistics are reported for that species item.

Criteria adopted

The 10,301 species items have been selected according to their interest or relation to fisheries and aquaculture. Recent taxonomic revisions have been consulted to use the correct scientific names and taxonomic classification. This allowed the identification of some scientific names and taxonomic codes used in the FAO fishery statistics databases that were no longer correct.
A pragmatic and conservative approach has been applied for uncertain cases. Changes of scientific names and creation of new species proposed in the scientific literature by

taxonomists will be included in the ASFIS list only when such changes have been recognized by the majority of taxonomists and are well consolidated among people dealing with fishery matters and, in particular, fishery statistics. For the most controversial cases, the ASFA database has been consulted to verify if a newly proposed scientific name has become of current use.
In some cases the taxonomic codes have not been modified according to recent taxonomic revisions as it would have entailed major changes in species items having statistics or because the relevant digits of the taxonomic code were not available. For some genera of scarce importance for fisheries and including many species, a single species has been selected and included in the list to assign a taxonomic code to the genus.

Results obtained and future developments

The creation of the ASFIS list of species has allowed 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.
During the preparation of the first version of the ASFIS list about 60 scientific names were updated, 24 species items deleted or merged with already existing species items because recognized as synonyms, and about 270 taxonomic codes changed. As the species items are sorted by taxonomic code within each ISSCAAP groups, the corrections of taxonomic codes has made the presentation of species more consistent in the FAO Yearbooks.
The availability of an extended list of species items has surely contributed to the marked increase of the number of species items included in the FAO capture statistics in recent years, as can be seen in the table below.

Number of species items in the FAO capture statistics

Year	Number of species items	Increase
1990*	995	
1991*	1014	+1.9%
1992*	1022	+0.8%
1993*	1028	+0.6%
1994*	1039	+1.1%
1995*	1080	+3.9%
1996	1035	-4.2%
1997	1073	+3.7%
1998	1142	+6.4%
1999	1205	+5.5%

*Catches and landings statistics included also aquaculture species

The ASFIS species list has been recently used by ASFA to prepare a list of species for its data inputers and to develop a spell checker of scientific names. Besides to CWP members, the ASFIS lists has been provided to several FAO national correspondents for fisheries statistics (e.g. Morocco, Spain, Ukraine, etc.), research institutes (e.g. Namibia, Spain, UK, etc.) and fishery projects (e.g. Papua New Guinea Fisheries Development Project and FIAS).
New species items are added to the ASFIS list of species upon request of CWP members and other institutions. Between the first release (June 2000) and the present release (March 2001),

26 new species items were added. Since March 2001 to date, 18 new species items have been included on the master version of the database hosting the list. The next release is expected for March 2002, after the closure of the FAO capture database. For the year 2002, a printed version of the ASFIS list of species has also been planned in collaboration with ASFA.

Downloading of the list and contact

The zipped file containing the ASFIS list in the txt format can be downloaded from the FAO web site at

http://www.fao.org/fi/statist/fisoft/asfis/asfis.asp.

The file can be then easily imported in spreadsheet or database software. The structure of the database, the main sources consulted to compile the list and additional information are made available at the same web address. French and Spanish versions of the explanatory texts are also available at the FAO Fisheries Department web site.
The ASFIS list of species has been compiled in the FAO Fishery Information, Data and Statistics Unit by Luca Garibaldi and Sara Busilacchi. Please address inquiries or comments to: Luca.Garibaldi@fao.org.

Agenda item 15: Coordination of description of national statistical methodologies

Note: FAO input on this agenda item is restricted to the aspect of quality of national statistics

There is increasing concern that the quality of many national data has deteriorated. In many countries the system used to collect data has not been revised since its establishment despite important changes to the productive structure of the industry. Quality of the world data held in international databases has become a critical issue, as those data are often used for global analyses and policy decisions.

In past sessions CWP suggested several measures to provide data users with indicators of the quality of international fishery datasets. It has been repeatedly emphasized that most of the data held by FAO are collected at national level; FAO has no control on the established methodology, on its accurate implementation, and hence on the quality of the final data collected, processed and submitted as to their completeness, accuracy and detail. In view of the difficulty in identifying sources for single records and providing a reliability indicator (metadata documentation), implementing a recommendation of the Ad Hoc Consultation on Global Catch Statistics (23-25 May 1984, Copenhagen) an annotated bibliography was prepared by FAO in 1988, and revised in 1991, to document as a bare minimum all national statistical sources used as reference material to validate statistics received by national reporting authorities.

Modern technology has on one side provided new challenges and solutions (e.g. metadata), on the other has decreased the number of national publications. As part of the FIGIS implementation, it is proposed to document each piece of information so that its ownership, scope, and quality characteristics are accessible to anyone.

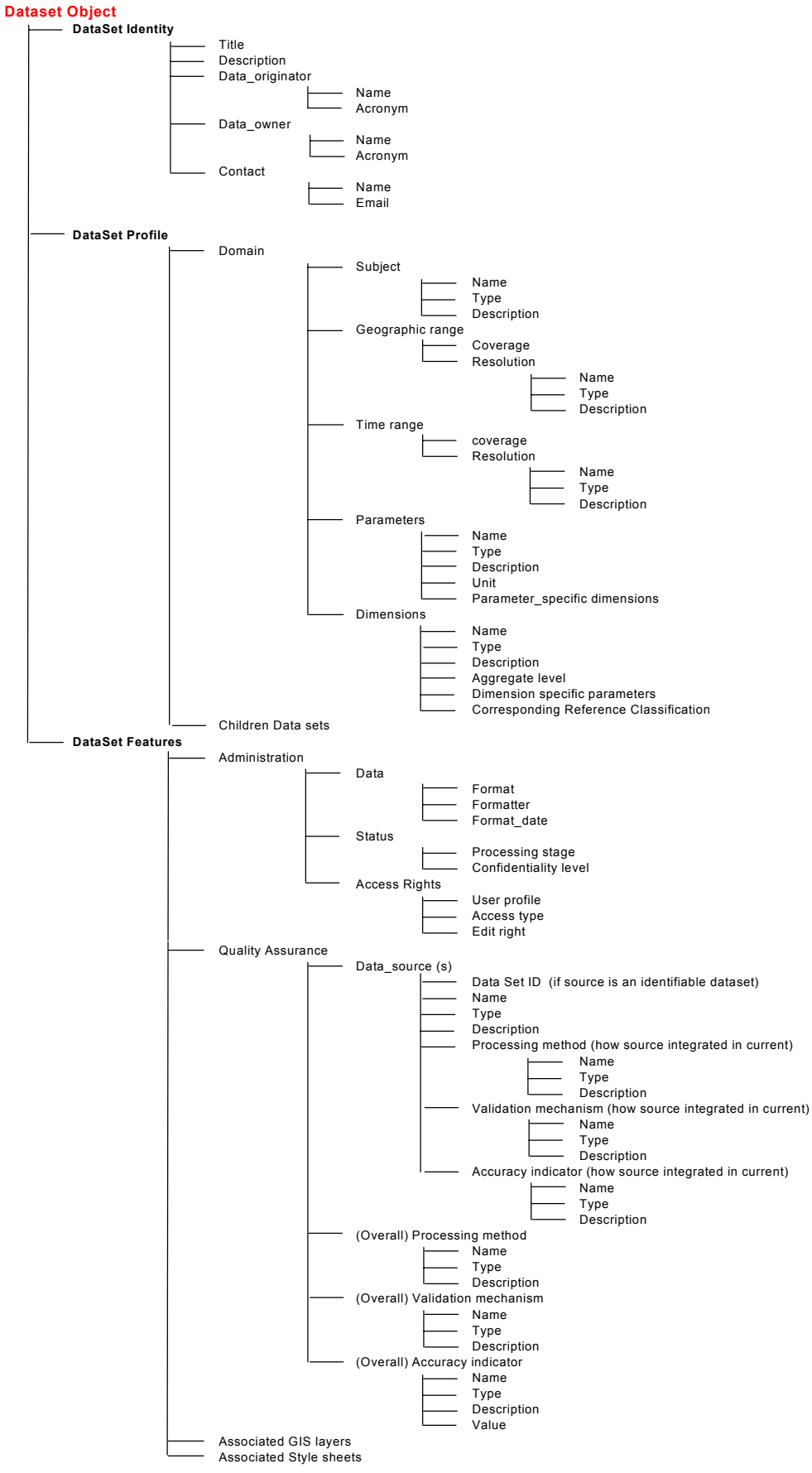
Each piece of information in FIGIS is usually included as part of homogeneous computerised collections, called Data set. A conceptual representation of the Data set documentation framework is presented on Figure 1, in a hierarchical way. This representation conforms itself to FIGIS XML design patterns, and it is proposed that once agreed, the Data set description structure will be fully implemented as part of the overall FIGIS design.

What follows is an overview of the FIGIS proposed Data set hierarchical structure (Figure 1):
Data set identity: this section serves the purpose of uniquely identifying any data set. A data set has a title, is produced under an institutionalised data collection programme, has a data owner (the legal owner of the data), not to be confused with the data originator (the producer of the data).
Data set profile: this section describes data type, range, coverage and other Metadata necessary to identify the relevance of a data set to users information needs. It also tracks relationships between this Data set and the other (children) Data set from which it may evolve.
Data set features: this section gives additional information necessary to the administration of this information (version management, timeliness, access rights), and to describe the Data set's quality: the data source(s) from which the data set is elaborated, and the processing methods and validation mechanisms used to compile (aggregate) from this source to the current. One or more accuracy indicators may be derived from this process, eg coverage ratio, extrapolation ratio, variance, errors probability. This documentation on quality can be

given globally for the data set, but efforts should be made to provide this information for each Data source item participating to the construction of the data set. Such a process, if replicated from the most aggregated levels down to the field data, would provide full quality assurance. Other features may be added, like the reference to GIS layers necessary to spatially represent the geo-referenced data, or to style sheets used for the layout.

Figure 1: FIGIS data set information structure

Data Set



Agenda item 16: Role of the CWP in Relation to Statistical Development

The CWP has in the past been very effective in dealing with technical issues relating to norms, standards, classifications and definitions concerning fishery statistics and in coordinating statistical activities amongst participating agencies. It has not often played an advocacy role and indeed the situations in which it could play such a role would be quite limited as it is a technical working party comprising experts from many participating organizations with an advisory role and no executive functions. Nevertheless, it has earned respect as an authoritative body with a long history of developing statistical standards and now has expanded its membership to include most marine regional fishery bodies, and as such it could be influential in matters relating to fishery statistics.

An example of the influence of the CWP when it took on one of its rare advocacy roles was in having the specifications of fishery data requirements contained in Annex 1 of the UN Fish Stocks Agreement form an integral and binding part of the Agreement, the first time such detailed data requirements had been specified in an international agreement. According to Doulman[21], there was considerable discussion at the UN Conference as to what standing the annexes of the draft Agreement should have, with some delegations arguing that they should not be binding. Referring to the CWP text submitted to the Conference, Doulman states "This strong and unambiguous support from the world's major fishery bodies indicated clearly the need for the specification of minimum standards in the draft Agreement". It was agreed finally that Annexes 1 and 2 would be an integral part of the Agreement, and thus be binding. Article 48 of the Agreement specifies that the Annexes to the Agreement may be revised from time to time by States Parties based on scientific and technical considerations such as those in the CWP.

Another area where CWP might be able to exert its influence for the benefit of international fishery statistics could be in promoting the development of fishery statistics programmes at the national and regional levels and in motivating funds for this from national governments and development and donor agencies. The CWP may want to discuss whether such a role is appropriate and, if so, what opportunities it may wish to avail of and the mechanism by which it would do so. If, for example, a statement on current shortcomings in fishery statistics and the need for more national commitment and donor support to improve the situation were agreed, presumably it would have to be agreed by each agency through its own internal mechanisms before being released on behalf of the CWP.

One opportunity for CWP to take a position and make it known could be in relation to a Technical Consultation on Improved Fishery Status and Trends Reporting which will take place in March 2002. On the recommendation of the Advisory Committee on Fishery Research which had identified as top priority the need for improved status and trends reporting on fisheries, FAO prepared a draft for a voluntary International Plan of Action for Fishery Status and Trends Reporting (see CWP/19/Inf.3).

The immediate objective of the draft Plan of Action would be to improve reporting on the status and trends of fisheries and fishery resources in support of more effective fisheries policy-making and management and better monitoring of environmental and ecosystem

[21] Doulman, D.J., Structure and process of the 1993-1995 United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, FAO Fisheries Circular (FAO). 0429-9329, no. 898, FAO, Rome.

impacts of and on fisheries. The Plan of Action would provide a framework, strategy and plan for the improvement of data and knowledge on fisheries and fishery resources and at national, regional and global scales. It would apply to capture fisheries in both marine and inland waters. It would specify the roles and responsibilities of States in its implementation, whether acting individually or collectively through organizations or arrangements as well as the activities required and the mechanisms to promote such implementation. It would promote capacity-building and assistance to developing countries to ensure all countries have the opportunity to act on the Plan of Action. Importantly, it would promote coordination for a more systematic assembly and synthesis of information on fisheries and fishery resources from national to regional and global scales, thus providing more reliable and comprehensive reporting at regional and global levels, including to COFI.

The long-term objectives of the draft Plan of Action would be to contribute to the improvement of fisheries governance and management. As such, it is in direct support to the Code of Conduct for Responsible Fisheries, and Article 7 – Fisheries Management in particular.

The meeting of FAO and non-FAO Regional Fishery Bodies and Arrangements (RFBs) (Rome, 11-12 February 1999) discussed the role of RFBs in contributing to fishery status reporting, including the development of a multifaceted approach to information and possible partnerships towards a global, co-operative mechanism for information exchange and dissemination. This proposal for improved fishery status and trends reporting also responds to the discussions and recommendations of that meeting.

COFI at its session in February 2001 discussed the proposed approach to improve the information available globally on status and trends of fisheries and whether an international plan of action would be an effective means in this regard. It agreed that reporting on fishery status and trends had shortcomings which required attention, that that basic data of good quality were often lacking at the national level and that particular attention needed to be directed to multi-species fisheries and small-scale fisheries which prevailed in many tropical developing countries. COFI further recognized that reliable fishery statistical data collection was a national responsibility and that adequate financial and other resources were often lacking for methodologically-sound statistical activities. COFI was, however, divided on whether an IPOA was the best instrument to achieve the long-term goals with some Members stating that alternative approaches should be be sought. Some Members and observers stated that improvements to trend studies might come from a better networking between FAO and regional fishery bodies.

COFI emphasized the need for all States to have an opportunity to shape any future initiative in relation to status and trends reporting on fisheries, as well as in the drafting of the IPOA, if there were agreement to do this. To this effect the Committee recommended that a technical consultation be called by FAO to consider how fishery status and trends reporting could be improved effectively, including the possible development of an IPOA. The technical consultation should consider data and information collection and analysis and needs at the national, regional and global levels. Particular attention should be given to the needs of developing countries for capacity building. The proposals elaborated by the technical consultation should be presented to the Committee at its Twenty-fifth Session.

Agenda item 17: Handbook of Fishery Statistics - Completion and Revisions

Almost a decade after the publication of the first edition, following discussions and recommendations of several CWP Sessions, FAO has undertaken a thorough revision of the Handbook chapters already finalized and prepared draft chapters for integrating missing parts:

L- Fishery Fleet
M-Supply Balance Sheets
N-Aquaculture
O-STATLANT, STATPAC and FISHSTAT System of Questionnaires
P-Logbooks
Q-Fishing Gears classification
R-Fishing Effort
S-Fishery commodities classification

All the maps included in sections H- "Fishing Areas for Statistical Purposes" of the former edition have been digitized in preparation to the electronic dissemination of the Handbook.
Annexes II to VIII will be combined where applicable and will be available as links to references and classifications.

The work of revision has been accomplished only for the English edition of the Handbook.

The title proposed for the second edition is "*CWP Handbook of Statistical Standards*".