ICES COOPERATIVE RESEARCH REPORT

RAPPORT DES RECHERCHES COLLECTIVES

NO. 296

JULY 2009

Definition of Standard Data-Exchange Format for Sampling, Landings, and Effort Data from Commercial Fisheries

Updated version

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Recommended format for purposes of citation:

Jansen, T. (Ed). 2009. Definition of Standard Data-Exchange Format for Sampling, Landings, and Effort Data from Commercial Fisheries. ICES Cooperative Research Report No. 296. 43 pp. https://doi.org/10.17895/ices.pub.5422

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ISBN 978–87–7482–061–1 978-87-7482-339-1

ISSN 2707-7144

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Executive summary

A data format for sampling, landings, and effort data from commercial fisheries is defined and suggested as a standard for the exchange of data between partners in the community of fishery research, advice, and management of the Northeast Atlantic, including the Mediterranean and Black Seas.

The format is defined for comma-separated value (CSV) and extensible markup language (XML) files. Code lists and a range of data-checking criteria are part of the format.

The data aggregation level is as low as possible while still respecting data confidentiality issues. The format fulfils all the requirements given in the new Data Collection Regulation (EC, 2008a, 2008b) for these data types.

The history, background, and scope are presented, together with the principles adopted during development.

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1 Introduction

The great thing about standards is that there are so many of them.

Standardization of data-exchange formats is a natural and necessary development of the increasing need for cooperation and integration of fisheries data between institutes. However, the existence of several standards to report the same data is time consuming, threatens the quality of the information, and is frustrating for those in charge of reporting the data. In spite of such problems, data-exchange formats have proliferated in recent decades, driven by the need to fulfil specific tasks associated with research projects and/or expert groups.

The format described in this report became a de facto standard that emerged from a long development period and is now recognized informally by large parts of the fishery scientific community. On several occasions, it has proven to be efficient at addressing different usages, particularly automated data exchange in distributed systems and data warehousing.

This report will describe in detail the exchange format, providing information about its usage in distinct environments. Given the lack of formal methods for setting standards, publication by ICES in this series will make this available to the fishery com-munity. In Section 1.2, we elaborate on the principles that were adopted to develop a format that would meet the needs and compromises in the best and most enduring way possible.

1.1 Background

The first version of this format was prepared in 1995 for the exchange of discard sampling data from the Baltic Sea. The format for survey data used in ICES served as a template. It was further developed during three consecutive EU studies (1994/058, 1996/02, 1998/024). All three projects were coordinated by DTU Aqua (the former Danish Institute for Fisheries Research (DIFRES)), and the format was used to exchange and store the data before processing in a file-based SAS program. After the EU study projects, the work continued, and new versions were released in parallel with the development of the web-based data warehouse FishFrame (FishFrame, 2008; Jansen *et al.*, 2008). Between versions 1.0 and 4.3, formats for landings and effort were added, the sampling format was normalized by adding two new record types (trip and species list), and the existing fields were reviewed. Many fields were added, deleted, or clarified to match the increasing size and complexity of the user base. The code lists were also subjected to major changes. The work was coordinated by the FishFrame authors from DTU Aqua, but the format is a condensation of all input from FishFrame users and ICES expert groups, mainly the Baltic Fisheries Assessment Working Group (WGBFAS) and the Planning Group for Herring Surveys (PGHERS). The latest versions were reviewed by users from a wider area through the EC project COST (Anon., 2008) and in light of the new Data Collection Regulation (DCR; EC, 2008a, 2008b) — important for the long-term stability and wide usage of the format. The data-exchange format used to calculate precision within COST is seen as the one requiring the most disaggregated information and making use of each of the variables. It is anticipated that this data-exchange format, serving the needs of such a project, would also meet the needs of most of the scientific groups. The version from June 2008, printed in Jansen *et al.* (2008), with the modifications agreed after the second COST meeting, has been implemented in FishFrame 5.0 and COST 1.0. The cur-

rent version of the format incorporates the experiences from these implementations, producing a stable format that is expected to evolve more slowly in future.

1.2 Scope and principles

The format can be used by all who are working with commercial fisheries data at any specified aggregation level, and also with software for parsing data internally and externally, e.g. in server-to-server automated data exchange.

Setting a standard involves many compromises between the special needs of various user groups, institutes, and countries. At the same time, it is important to keep the format as simple as possible. The more complex, inconsistent, and filled with exceptions a format is, the greater the risk of making mistakes that result in poorer data quality. Drawing the line between opposing interests was the main challenge during development of the format. On one hand, we strove to keep the level of aggregation as low as possible, giving all relevant details for later processing and aggregation. On the other hand, we tried to filter out nation-specific requirements and exotic special cases for the sake of simplicity.

Data confidentiality is also a major consideration; fortunately, the tendency is towards increasing levels of openness.

Data confidentiality is important when dealing with raw data, and this had a major impact on the development of the exchange format. The design presented allows the encryption of parts of the data, making it anonymous, namely references to individual vessels in the format for sampling. The aggregation level in landings and effort is also set to respect the identity of individual vessels. As long as the information regarding the sampling stratification is clear, it should not affect the outcome of the analysis. Fortunately, because levels of openness regarding data sharing are increasing, it is hoped that this will no longer be a problem in future.

The new DCR (EC, 2008a, 2008b) changed the data requirements for fisheries data, the list of variables, and their specification. This has also affected the format, because it was clear that the format should fulfil all of the requirements given in the new DCR.

1.2.1 Choice of file formats

Beginning with comma-separated value (CSV) language, the format moved in the direction of extensible markup language (XML; W3C, 2008) because, when it was introduced, this was the big, new format for data exchange. The advantage of XML is that it is self-explanatory because of the element naming. The structure also facilitates normalization, as in relational databases. However, experience has demonstrated that XML is not very practical when it comes to working with data and looking at data files; CSV is far better when data are presented in a spreadsheet. XML also inflates the data files so that the same amount of data requires 5–10 times as much space as CSV. On the other hand, XML provides a good interface for programming and, therefore, is a good choice for data parsing inside software and between systems. In order to improve the CSV format with some of the features from XML, namely being self-explanatory because of the element naming, we have made it possible to insert a header row. This makes it more user-friendly when handling data in spreadsheets and provides standard column-header names when reading the data into software.

Therefore, it has become clear that both formats are needed: CSV as the basic format and XML as a shadow format to be used inside and between software. Both formats should be standardized, matching, and treated in parallel.

1.2.2 CSV format considerations

All unique key fields are repeated for each record; this ensures that reordering the lines does not lead to information loss or error. The key fields, therefore, are inherited down through the data record types in the hierarchic data type for commercial fisheries sampling (CS). This facilitates sorting and selecting data in spreadsheets.

The order of the fields has been selected so that, after a two-letter record-type identifier (e.g. TR, HH, SL, etc.), all unique key fields (fields that uniquely identify the record, e.g. country, year, sampling type) come first, followed by metadata (describing the record, e.g. information on methodology). The specific information of the record (the values) is always placed at the end.

The format has been "normalized" as much as possible, especially with regard to the fields in each record. For example, duplication of information and summation fields for checking purposes have been removed, eliminating the possibility of internal inconsistency. Check sums can be made by any system or user and do not belong in the exchange formatted data. Repeating the full natural key.DOWN through the system may seem inefficient, and it could be avoided by introducing surrogate keys instead of the compound unique natural keys, as would be done when implementing the data structure in a relational database system. This, however, would compromise user-friendliness and readability of the data files. Linking between records from foreign key to primary key, therefore, is done via the compound unique keys.

1.2.3 XML format considerations

The philosophy behind the XML format is that the record types are *XML elements*; their defining unique properties (natural key) are *XML attributes* on the elements, whereas their values are *sub-elements*. Code lists are kept in separate enumeration-files.

1.3 Versioning

The requirements for fisheries data evolve over time, reflecting the new demands arising from data analysis, sampling practice, or changes in the fishery. The exchange format should evolve in order to reflect these changes and avoid becoming outdated. Although the current format and code lists have been widely reviewed and have matured, the exchange format is likely to continue to evolve, although concerns about stability will always be taken into account.

These updates are given subsequent version numbers. The first figure refers to major releases that will entail large changes or additions that will affect the core structure of the exchange format. The second figure refers to minor updates, including bug corrections or small changes that will not affect the core exchange format. All versions will be laid out on the ICES website next to the link to this report (http://www.ices.dk/products/cooperative.asp) with clear descriptions of the changes.

The reference to a particular version of this format would then appear as, e.g.:

> Standard Data Exchange Format for Sampling, Landings, and Effort Data from Commercial Fisheries including update no. X (Jansen *et al.*, 2008).

2 Exchange format definition

The data formats are given for three data types, each consisting of one or more record types. The data formats are given for two different file formats.

2.1 Data types and record types

The following data types are defined:

- CS = Commercial fisheries sampling
- CL = Commercial fisheries landings statistics
- CE = Commercial fisheries effort statistics.

Each of these three data types consists of data of specific record types (see below).

Data type	Record types
CS (Commercial fisheries sampling)	TR (trip) A commercial fishing trip that has been sampled on board or a sample from a fish market.
	HH (haul header) Detailed information about a fishing operation, e.g. a haul or a net set.
	SL (species list) The sorting strata defined by species, catch category, etc.
	HL (haul length) Length frequency in the subsample of the stratum. One record represents one length class.
	CA (catch aged) = SMAWL (Sex-Maturity-Age-Weight-Length) Sex-Maturity-Age-Weight distribution sampled representatively from the length groups. One record represents one fish.
CL (Commercial fisheries landings statistics)	CL (commercial fisheries landings statistics) Official landings statistics with some modifiers for misreporting.
CE (Commercial fisheries effort statistics)	CE (commercial fisheries effort statistics) Effort statistics from logbooks.

The record types are given in a specific hierarchy (Figure 1) and order within the data file. Each data record consists of a range of data fields. The required order is given below.

The fields are defined in Sections 2.3 and 2.4. Keys to the table headers are given in Section 2.2.

For convenience when working with the data files, it is advisable to sort the records by all the key variable fields.

It is possible to add header rows with column-header names in the file.

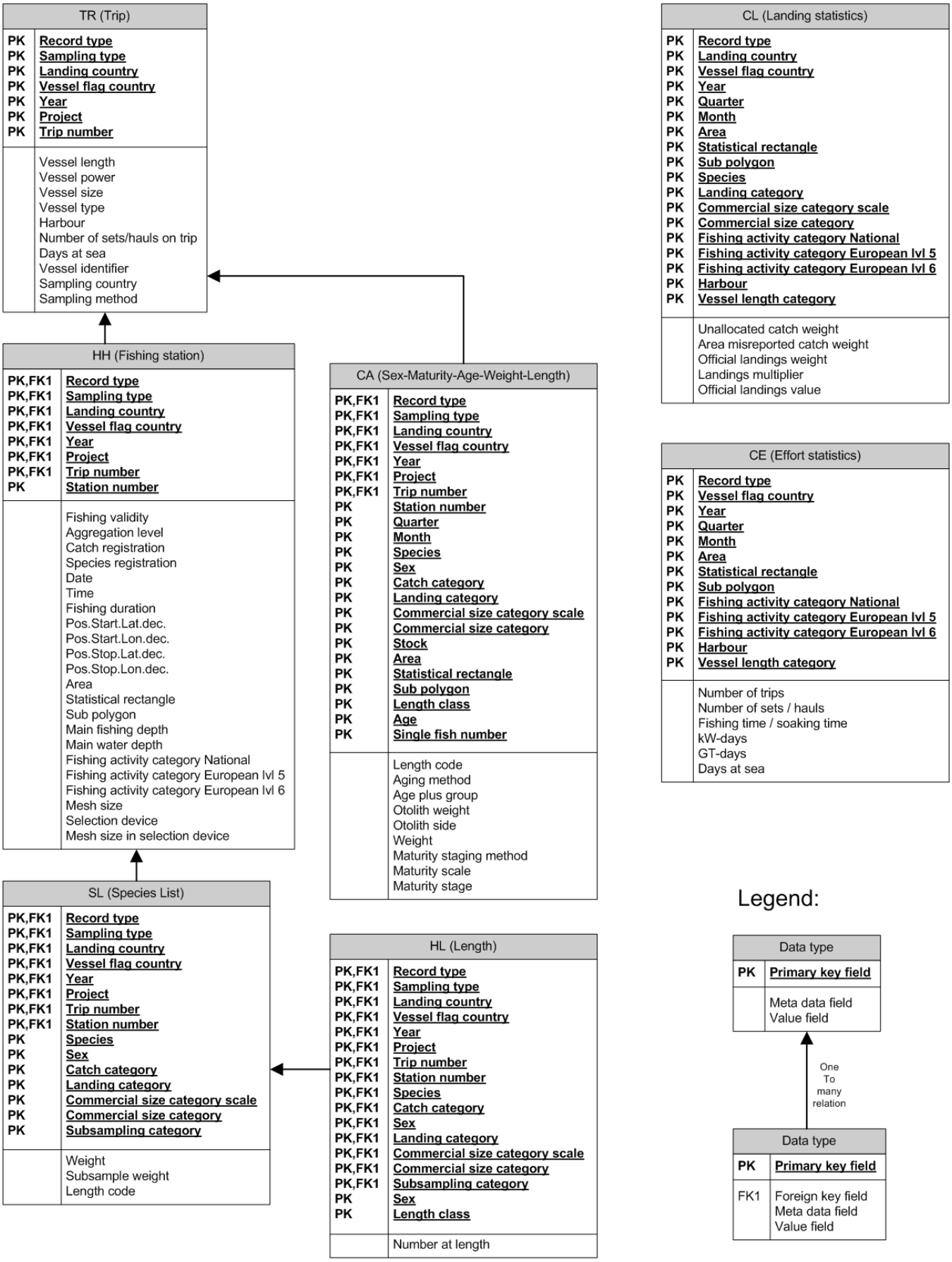


Figure 1. Data entity diagram of the data types.

2.1.1 Record-type order

2.1.1.1 Header rows

Header rows should always appear at the beginning of the file. Data records must not be mixed with the header rows. Only one header row per data type is needed or allowed. For CS files, these comprise up to five rows, and for CL and CE files, only one row.

The rows are found in Annex 3, from where they can be pasted into data files or data-extraction scripts.

2.1.1.2 Commercial fisheries sampling (CS)

The structure is nested. Special ordering is required.

The records must be given trip (TR) by trip, with each trip being followed by all the records belonging to that trip. Within each trip, each station (HH) must be followed by the corresponding species lists (SL). Each species list record must be followed by the corresponding length records (HL). The CA (SMAWL) records can be placed either after the corresponding set of lengths (HL) or at the end of a trip.

TR is a mandatory record type. It should be followed by at least one HH record.

2.1.1.3 Commercial fisheries landings statistics (CL)

The structure is simple. There is only one kind of record. No ordering is required.

2.1.1.4 Commercial fisheries effort statistics (CE)

The structure is simple. There is only one kind of record. No ordering is required.

2.1.2 Field definitions

The fields follow the definitions in the tables in Section 2.3. Each table contains the definitions, lists the basic data checks performed when uploading the data, and gives the field ordering information for CSV files. The XSD (XML Schema Definition) files in Section 2.4 contain complete definitions for the XML format, and examples of XML files are given to aid interpretation of the XSD.

The columns in the tables in Section 2.3.

Column	Description
Order	The order in the CSV line.
Name	A descriptive name of the field. An asterisk "*" after the name indicates that the field is part of the key.
Type	The data type. Integer = whole number; String = text string; Dec = decimal. (The number after "Dec", e.g. "4" in "Dec(4)", describes the number of decimals.)
Req.	Required information: M = mandatory; O = optional. When information is missing in optional fields in CSV files, an empty zero-length string should be added between the commas/semicolons, e.g. the three items of missing information in: "54,,EXPO,,,". For example, the commas in "54,,EXPO,,," represent three missing values (items of information). When information is missing in optional fields in the XML file, either the corresponding attributes or element are left out.
Basic checks	The range or list of valid values. For code lists, please contact authors for valid codes (also available online as a report).
Comments	Additional comments and clarifications.

2.2 File formats

The data can be exchanged in the following file formats.

- **CSV**. Unicode UTF-8 file with the values separated by either a semi-colon or a comma. The decimal separator should be a comma when the delimiter is a semi-colon, and a point when the delimiter is a comma. This format is preferred for human-to-server and human-to-human interaction (manual exchange).
- **XML**. XML file following the W3C standard for exchanging data over the Internet (W3C, 2008). This format is preferred for server-to-server interaction (automated upload).

The filename is required to indicate which data type the file contains. This is done by following the naming convention: the last two letters in the filename should be the data type, i.e. CS, CL, or CE. The extension of the file name indicates the format of the file. Notice that zip and rar files should also follow this naming convention.

It is recommended that the files follow a systematic naming convention, e.g.:

- The name of the data file should indicate the key variables, such as country, year, etc., as follows: e.g. the file name for "Sweden; 1997; Q1; commercial sampling" in a semi-colon-separated file should be given as "SWE_1997_Q1_Market_CS.csv".
- The only required naming convention is the file extension and the last two letters that state the data type (e.g. the following file names would be accepted by the system, but might not be advisable for keeping track of one's own national data files: "CS.csv" or "DataOKCL.zip").

2.3 Record type and CSV file format definitions

2.3.1 Trip record (TR) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments
1	Record type *	String	M		Fixed value TR.
2	Sampling type *	String	M	Code list [1]	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, "V" = vendor. [1]
3	Landing country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes: the country where the vessel is landing and selling the catch. [2]
4	Vessel flag country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes: the flag country of the vessel. This can be different from the landing country (see description of Landing country). [2]
5	Year *	Integer	M	1 900 – 3 000	
6	Project *	String	M	Code list	National project name. Code list is editable.
7	Trip number *	Integer	M	1 – 999 999	National coding system. [3]
8	Vessel length	Integer	O [4]	3 – 160	Over-all length in metres.
9	Vessel power	Integer	O [4]	4 – 7 500	Vessel power (kW). [5]
10	Vessel size	Integer	O [4]	1 – 2 500	Gross registered tonnes (GRT).
11	Vessel type	Integer	M [6]	Code list	1 = stern trawler, 2 = side trawler, 3 = gillnetter, 4 = other boats.
12	Harbour	String	O	Code list	Landing harbour.
13	Number of sets/hauls on trip	Integer	O [6]	1 – 300 [7]	Total number of hauls/sets taken during the trip. Both the stations where biological measures were taken and the stations that were not worked up should be counted here. [8]
14	Days at sea	Integer	O	1 – 60	In days. [9]

Order	Name	Type	Req.	Basic checks	Comments
15	Vessel identifier (encrypted)	Integer	O	1 – 999 999	Encrypted vessel identifier. Id encrypted so that no-one can map the Id to the real vessel.
16	Sampling country	String	M	Code list	ISO 3166 – 1 alpha-3 codes. The country that did the sampling.
17	Sampling method	String	M	Code list	"Observer" or "SelfSampling".

*** = key field**

[1] Mandatory for sampling type = "M" and "S" (criteria to be checked).

[2] The values of the fields "LandingCountry" and "VesselFlagCountry" for the given catch should correspond to the CL (commercial landings) data. In the special case where a vessel lands the catch in country A, but the catch is transported directly to country B, it should be registered as being landed in country B, because the catch would add to the CL values for country B.

[3] A trip (TR) is defined for:

- **a) Sea sampling, as the period between when a vessel departs from a port (or factory ship) and arrives at a port (or factory ship) for discharge of its catch.**
- **b) Market sampling, as a sampling trip to a market. This would typically be just one day. If this grouping information is not available nationally, any other reasonable grouping of market samples can be used. The time-span of the trip has no implication for the raising of the market samples.**

[4] The sampling types are as follows:

- **a) "M" = market sampling of known fishing trips. "M" should be used when it was impossible to obtain samples of the discard. Exact information on time and place of catch may not be available, and normally the landing cannot be split into hauls/sets but has to be worked up as pooled for all hauls/sets. Market sampling can be done by observers at fish markets.**
- **b) "D" = market sampling of mixed trips (day trips to market). "D" should be used when it was impossible to obtain samples of the discard. Exact information on time and place of catch may not be available, and normally the landing cannot be split into hauls/sets but has to be worked up as pooled for all hauls/sets/trips. Market sampling can be done by observers at fish markets.**
- **c) "S"= sea sampling. "S" should be used when exact information about time and place for the catch is available. Each haul/set can be worked up separately. Sea sampling can be done by observers or by self-sampling at sea or in the port.**
- **d) "V" = vendor. The sample has been bought from a fish vendor. The sample is accompanied with a very restricted set of information. Only TR and CA records are allowed for this type (criteria to be checked).**

[5] Conversion factor: horsepower (hp) to kW = 1/1.3596 = 0.7355.

[6]In order to raise sample level to total national level by using effort (e.g. number of trips), it is necessary to know the fraction of the total number of hauls/set performed during the trip.

[7] Mandatory for data from 2009 onwards (criteria to be checked).

[8] 2–99 if "Aggregation level" on child-HH record is set to "TR" (= trip; criteria to be checked).

[9] A day at sea shall be measured as any continuous period of 24 hours (or part thereof) where a vessel is absent from port. The time from when the continuous period is measured is at the discretion of the Member State whose flag is flown by the vessel concerned.

2.3.2 Fishing station record (HH) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments
1	Record type *	String	M		Fixed value HH.
2	Sampling type *	String	M	Code list	"S" = sea sampling; "M" = market sampling of known fishing trips; "D" = market sampling of mixed trips; "V" = vendor.
3	Landing country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes
4	Vessel flag country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes. The flag country of the vessel. This can be different from the landing country (see description of LandingCountry).
5	Year *	Integer	M	1 900 – 3 000	
6	Project *	String	M	Code list	National project name. Code list is editable.
7	Trip number *	Integer	M	1 – 999 999	National coding system.[1]
8	Station number*	Integer	M	1–99999[2]	Sequential numbering by trip.[1]
9	Fishing validity	String	O[3,4]	Code list	I = Invalid. V = Valid.
10	Aggregation level	String	O[3,5]	Code list	H = haul. T = trip.
11	Catch registration	String	M	Code list	The parts (landings/discards) of the catch, registered as "All", "Lan", "Dis", "Non".[6]
12	Species registration	String	M	Code list	The species in the catch, registered as "All", "Par", "Non".[7]
13	Date	String	M	"1900 – 01 – 01" to "2020 – 12 – 31"	"YYYY-MM-DD" (ISO 8601).[8] Fishing starting date.
14	Time	String	O	00:00 – 23:59	Starting time. "HH:MM"... in UTC.[9]
15	Fishing duration	Integer	O[3]	5 – 99 999	In minutes.[10]
16	Pos.Start.Lat.dec.	Dec(5)	O[3]	20.00000 – 80.00000	Shooting (start) position in decimal degrees of latitude.[11]
17	Pos.Start.Lon.dec.	Dec(5)	O[3]	–31.00000 – 31.00000	Shooting (start) position in decimal degrees of longitude.[11]
18	Pos.Stop.Lat.dec.	Dec(5)	O	20.00000 – 80.00000	Hauling (stop) position in decimal degrees of latitude.[11]
19	Pos.Stop.Lon.dec.	Dec(5)	O	–31.00000 – 31.00000	Hauling (stop) position in decimal degrees of longitude.[11]
20	Area	String	M	Code list	Area level 3 (level 4 for Baltic, Mediterranean, and Black Seas) in the Data Collection Regulation (EC, 2008a, 2008b).
21	Statistical rectangle	String	O[3,12]	Code list	Area level 5 in the Data Collection Regulation (EC, 2008a, 2008b). This is the ICES statistical rectangles (e.g. 41G9) except for the Mediterranean and Black Seas, where GFCM geographical subareas (GSAs) are used.[13]
22	Subpolygon	String	O	Code list	National level as defined by each country as child nodes (substratification) of the ICES rectangles. It is recommended that this is coordinated internationally, e.g. through the Regional Coordination Meetings (EC RCMs).
23	Main fishing depth	Integer	O	1–999	Depth from surface to groundrope in metres.[5]
24	Main water depth	Integer	O	1–999	Depth from surface in metres.[14]
25	Fishing activity category National	String	O	Code list	Country specific Fishing activity category (= métier). National level as defined by each country as child nodes (substratification) of the level-5 codes.

Order	Name	Type	Req.	Basic checks	Comments
26	Fishing activity category European lvl 5	String	O[15]	Code list	Fishing activity category (= métier). Level 5 as defined in a hierarchic structure in the Data Collection Regulation (EC, 2008a, 2008b).
27	Fishing activity category European lvl 6	String	O[15, 16]	Code list	Fishing activity category. Level 6 as defined in a hierarchic structure in the Data Collection Regulation (EC, 2008a, 2008b). Level 6 is further specified by the Regional Coordination Meetings (EC RCMs, Council Regulation [EC] No 1543/2000) or any later authorized revision.
28	Gear type	streng	M	Code list	
29	Mesh size	Integer	O[17]	1–999	Stretch measure.[18]
30	Selection device	Integer	O[3]	Code list	Not mounted = 0, Exit window / selection panel = 1, grid = 2. A selection device is defined as a square-meshed panel or window that is inserted into a towed net.
31	Mesh size in selection device	Integer	O	18 – 200	In mm. The mesh size of a square-meshed panel or window shall mean the largest determinable mesh size of such a panel or window.

*** = key field**

[1] A trip is defined for:

- **a) Sampling type "S" (sea sampling) and "M" (market sampling of known fishing trips) as the period between when a vessel departs from a port (or factory ship) and arrives at a port (or factory ship) for discharge of its catch.**
- **b) Sampling type "D" (market sampling of mixed trips) as a sampling trip to a market. This would typically be just one day. If this grouping information is not available nationally, any other reasonable grouping of market samples can be used. The time-span of the trip has no implication for the raising of the market samples. The samples can originate in a mix of trips, but all from the same fishing activity category (métier).**

[2] If aggregation level is "T", the station no. = 999 (criteria to be checked).

[3] Mandatory for sampling type = "S" (criteria to be checked).

[4] When a haul is invalid, there is no need for species data. No SLs and HLs allowed (criteria to be checked).

[5] If more than one station exist for the same trip, then all should be "H" (= haul).

[6] This field describes the fraction of the catch that was registered. If the value "None" is used, SpeciesRegistration must also be assigned "None" (criteria to be checked).

- **a) "All" = SL record is expected for both landings and discards fractions. If there is no SL record, it is a true measured 0-value.**
- **b) "Lan" = SL record is expected only for the landed fraction. For this fraction, if there is no SL record, it is a true measured 0-value. For the discards, no SL record is expected because it has not been registered.**
- **c) "Dis" = SL record is expected only for the discarded fraction. For this fraction, if there is no SL record, it is a true measured 0-value. For the landings, no SL record is expected because it has not been registered.**
- **d) "Non" = None. There are no SL records (criteria to be checked).**

[7] This field describes whether all species or only a subset has been registered. If the value "None" is used, CatchRegistration must also be assigned "None" (criteria to be checked).

- **a) "All" = SL record is expected for all species in the given part of the catch. If there is no SL record, it is a true measured 0-value.**
- **b) "Par" = Partial. SL record is expected only for some of the caught species. If there is no SL record, it is not known if it is a true measured 0-value. Please refer to the sampling protocol for an exact list of species which can be provided by the institute in charge of the given sampling.**
- **c) "Non" = None. There are no SL records (criteria to be checked).**

[8] If aggregation level is "T", the day = day of first station no.

[9] If aggregation level is "T", the time shoot = time shot of first station no.

[10] If aggregation level is "T", the total fishing time is entered.

[11] If aggregation level is "T", the shooting position of the first station no. is entered.

[12] Mandatory if a value is given for the field "Subpolygon" (criteria to be checked).

[13] If aggregation level is "T" and the fishing positions covers more than one rectangle, the rectangle with the most fishing is entered.

[14] If aggregation level is "T", the estimated average depth is entered.

[15] Either "Fishing activity category European lvl 5" or "Fishing activity category European lvl 6" should be provided, but not both. Preferably level 6 because this includes the level 5 information (criteria to be checked).

[16] "Fishing activity category European lvl 6" is mandatory for data from 2009 onwards (criteria to be checked).

[17] Mandatory if sampling type is "M" or "S" and gear is not one of the following: LLD, LLS, LHM, LHP, LL.

[18] The mesh size is defined as the size in mm of a mesh stretched in the direction of the long diagonal of the meshes. The gauges to be used for determining mesh sizes shall be 2 mm thick, flat, of durable material, and capable of retaining their shape. The mesh size is measured in the codend if it is a trawl.

2.3.3 Species list record (SL) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments
1	Record type *	String	M		Fixed value SL.
2	Sampling type *	String	M	Code list	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, V" = vendor.
3	Landing country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes.
4	Vessel flag country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes. The flag country of the vessel. This can be different from the landing country (see description of LandingCountry).
5	Year *	Integer	M	1 900 – 3 000	
6	Project *	String	M	Code list	National project name. Code list is editable.
7	Trip number *	Integer	M	1 – 999 999	National coding system.
8	Station number *	Integer	M	1 – 999	Sequential numbering by trip.
9	Species *	String	M	Code list	Scientific name in Latin (*Genus species). (A suffix to the latin name is used for species for which Stock cannot be defined by area)*
10	Catch category *	String	M	Code list	The fate of the catch: "Dis" = discard, "Lan" = landing.
11	Landing category *	String	M	Code list	The intended usage at the time of landing. This should match the same field in CL record (whether or not the fish was actually used for this or another purpose): "IND" = industry or "HUC" = human consumption.
12	Commercial size category scale *	String	O	Code list	Commercial sorting scale code (optional for "Unsorted").
13	Commercial size category *	Integer	O	Code list	Commercial sorting category in the given scale (optional for "Unsorted"). (EC, 2006) and later amendments when scale is "EU".
14	Subsampling category *	String	O	Code list	Used when different fractions of the same species are subsampled at different levels. Typically used when few large specimens are taken out from the total catch before the many small fish are subsampled.
15	Sex *	String	O	Code list	M = Male, F = Female, T = Transitional[2] (optional for "Unsexed").
16	Weight	Integer	M	1 – 9 999 999 999	Whole weight in grammes. Decimals not allowed. Weight of the corresponding stratum (Species – Catch category – size category – Sex).
17	Subsample weight	Integer	O[1]	1 – 9 999 999 999	Whole weight in grammes. Decimals not allowed. For sea sampling: the live weight of the subsample of the corresponding stratum. For market sampling: the sample weight is the whole weight of the fish measured (e.g. the summed weight of the fish in one or more boxes).
18	Length code	String	O[1]	Code list	Class: 1 mm = "mm", 0.5 cm = "scm"; 1 cm = "cm"; 2.5 cm = 25 mm", 5 cm = "5 cm".

*** = key field**

[1] Mandatory if HL records are provided (criteria to be checked during upload).

[1] Only applicable for shrinps.

2.3.4 Length record (HL) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments
1	Record type *	String	M		Fixed value HL.
2	Sampling type *	String	M	Code list	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, "V" = vendor.
3	Landing country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes.
4	Vessel flag country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes. The flag country of the vessel. This may be different from the landing country (see description of LandingCountry).
5	Year *	Integer	M	1 900 – 3 000	
6	Project *	String	M	Code list	National project name. Code list is editable.
7	Trip number *	Integer	M	1 – 999 999	National coding system.
8	Station number *	Integer	M	1 – 999	Sequential numbering by trip.
9	Species *	String	M	Code list	Scientific name in Latin (*Genus species*). *A suffix to the latin name is used for species for which Stock cannot be defined by area)*
10	Catch category *	String	M	Code list	The fate of the catch: Dis = discard, Lan = landing.
11	Landing category *	String	M	Code list	The intended usage at the time of landing. This should match the same field in the LS record (whether or not the fish was actually used for this or another purpose): IND = industry, HUC = human consumption.
12	Commercial size category scale *	String	0	Code list	Commercial sorting scale code (optional for "Unsorted").
13	Commercial size category *	Integer	0	Code list	Commercial sorting category in the given scale (optional for "Unsorted"). See (EC, 2006) and later amendments when scale is "EU".
14	Subsampling category *	Integer	0	Code list	Used when different fractions of the same species are subsampled at different levels. Typically used when few large specimens are removed from the total catch before the many small fish are subsampled.
15	Sex *	String	0 [1]	Code list	M = Male, = , F = Female, T = Transitional = (optional for "Unsexed").
16	Individual sex	String	M	Code list (sex)	If M = Male, = , F = Female, T = Transitional = (optional for "Unsexed"). Only different from "Sex" if individual length distribution is obtained on HL-level (and not on SL-level).
17	Length class *	Integer	M	1–3 999	In mm. Identifier: lower bound of size class, e.g. 650 for 65 – 66 cm.
18	Number at length (not raised to whole catch)	Integer	M	1–999	Length classes with zero should be excluded from the record.

*** = key field**

[1] HL.Sex should always match SL.Sex (criteria to be checked).

2.3.5 Sex-Maturity-Age-Weight-Length record (CA) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments
1	Record type *	String	M		Fixed value CA.
2	Sampling type *	String	M	Code list	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, "V" = vendor.
3	Landing country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes.
4	Vessel flag country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes. The flag country of the vessel. This may be different from the landing country (see description of LandingCountry).
5	Year *	Integer	M	Code list	1 900–3 000.
6	Project *	String	M	Code list	National project name. Code list is editable.
7	Trip number *	Integer	M	1 – 999 999	National coding system.[1]
8	Station number *	Integer	O[2]	1–999	Sequential numbering by trip.
9	Quarter *	Integer	M	Code list	1–4.
10	Month *	Integer	O	Code list	1–12.
11	Species *	String	M	Code list	Scientific name in Latin (*Genus species*). A suffix to the latin name is used for species for which Stock cannot be defined by area)
12	Sex *	String	O	Code list	M= Male = , F = Female, T = Transitional = (optional for "Unsexed").
13	Catch category *	String	M	Code list	The fate of the catch: discard or landing.
14	Landing category *	String	M	Code list	The intended usage at the time of landing. This should match the same field in the LS record (whether or not the fish was actually used for this or another purpose): industry or human consumption.
15	Commercial size category scale *	String	O	Code list	Commercial sorting scale code (optional for "Unsorted").
16	Commercial size category *	Integer	O	Code list	Commercial sorting category in the given scale. (optional for "Unsorted").
17	Stock *	String	O	Code list	[3]
18	Area *	String	M	Code list	Area level 3 (level 4 for Baltic, Mediterranean, and Black Seas) in the Data Collection Regulation (EC, 2008a, 2008b).
19	Statistical rectangle *	String	O[4]	Code list	Area level 5 in the Data Collection Regulation (EC, 2008a, 2008b). This is the ICES statistical rectangles (e.g. 41G9) except for the Mediterranean and Black Seas where GFCM geographical subareas (GSAs) are used.
20	Subpolygon *	String	O	Code list	National level as defined by each country as child nodes (substratification) of the ICES rectangles. It is recommended that this is coordinated internationally, e.g. through the Regional Coordination Meetings (EC RCMs).
21	Length class *	Integer	M	1–3 999	In mm. Identifier: lower bound of size class, e.g. 650 for 65 –66 cm.
22	Age *	Integer	O	0–99	Estimated age.
23	Single fish number (id) *	Integer	M	1–999 999 999	National numbering system of the individual fish. Preferably unique within the given Station and Species, but necessarily unique for the given combination of key fields above.
24	Length code	Integer	M	Code list	Class: 1 mm = "mm", 0.5 cm = "scm"; 1 cm = "cm"; 2.5 cm = "25 mm", 5 cm = "5 cm".
25	Aging method	String	O[5]	Code list	Methodology for estimating the age.
26	Age-plus-group	String	M	Code list	+ = Plus group, – = Not plus group.[6]
27	Otolith weight	Dec(5)	O	0.000 00–99.999 99	In grammes.

Order	Name	Type	Req.	Basic checks	Comments
28	Otolith side	String	O	Code list	The side of the fish where the otolith was taken. R = right, L = left.
29	Weight	Dec(1)	O	1.0–99 999.9	In grammes.
30	Maturity staging method	String	O	Code list	Methodology for estimating the maturity stage.
31	Maturity scale	String	O	Code list	The maturity scale gives the range of the possible stages (values).
32	Maturity stage	String	O	Code list	The stage (value) in the given scale.

*** = key field**

- **A CA record represents only one fish.**
- **When all fish are aged and weighed, as in Danish market sampling from 2007, the system can detect whether an age–length key has been used. If this were not detected, or given in a separate field, the variance would be overestimated. The criterion is that the numbers-at-length should be a 100% match with those of HL and CA from a given trip.**
- **The Fishing Activity Categories are set to the same as given in the first matching HH record for the same trip. In the next version of the exchange format, the three FAC fields should be added to the CA record. All CA records should match at least one HH record on VesselFlagCountry, LandingCountry, Year, Quarter, Month, Area, and StatisticalRectangle (criteria to be checked).**
- **If "Station no" is missing, the first HH record for the same trip matching on VesselFlagCountry, LandingCountry, Year, Quarter, Month, Area, and StatisticalRectangle is assumed to be representative of the CA record (used to provide the FAC if needed). All CA records with sampling type different from "V" (vendor) should match at least one HH record on VesselFlagCountry, LandingCountry, Year, Quarter, Month, Area, and StatisticalRectangle (criteria to be checked; except for CAs from survey data).**

[1] The stage (value) should be within the range given by the "Maturity scale" (criteria to be checked).

[2] Otolith samples may refer to either an individual haul or groups of hauls in the same rectangle or within one sampling area, depending on the on-board procedures. If detailed information is available, refer to the haul number and/or rectangle; these data are, therefore, optional rather than mandatory.

[3] Only applicable for herring (*Clupea harengus*), salmon (*Salmo salar*), common whitefish (*Coregonus lavaretus*) and redfish (*Sebates mentella and S. viviparus*).

[4] Mandatory for sampling type = "S" (criteria to be checked).

[5] Mandatory if a value is given in "Age" (criteria to be checked).

[6] A plus-group refers to the age indicated and older, respectively, i.e. to a reading equal to or more than the specified number of rings. The use of a plus-group should be avoided when possible.

2.3.6 Commercial fisheries landings statistics record (CL)

Order	Name	Type	Req.	Basic checks	Comments
1	Record type *	String	M		Fixed value CL.
2	Landing country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes.
3	Vessel flag country *	String	M	Code list	ISO 3166 – 1 alpha-3 codes. The flag country of the vessel. This may be different from the landing country (see description of LandingCountry). [1]
4	Year *	Integer	M	Code list	1 900–3 000.
5	Quarter *	Integer	M	Code list	1–4.
6	Month *	Integer	O	Code list	1–12.
7	Area *	String	M	Code list	Area level 3 (level 4 for Baltic, Mediterranean, and Black Seas) in the Data Collection Regulation (EC, 2008a, 2008b).
8	Statistical rectangle *	String	O	Code list	Area level 5 in the Data Collection Regulation (EC, 2008a, 2008b). This is the ICES statistical rectangles (e.g. 41G9) except for the Mediterranean and Black Seas where GFCM geographical subareas (GSAs) are used.
9	Subpolygon *	String	O	Code list	National level as defined by each country as child nodes (substratification) of the ICES rectangles. It is recommended that this is coordinated internationally, e.g. through the Regional Coordination Meetings (EC RCMs).
10	Species *	String	M	Code list	Scientific name in Latin (*Genus species*). A suffix to the latin name is used for species for which Stock cannot be defined by area)
11	Landing category *	String	M	Code list	The intended usage at the time of landing. This should match the comparable field in the LS record (whether or not the fish was actually used for this or another purpose).
12	Commercial size category scale *	String	O	Code list	Commercial sorting scale code (optional for "Unsorted").
13	Commercial size category *	Integer	O	Code list	Commercial sorting category in the given scale (optional for "Unsorted"). See (EC, 2006) and later amendments when scale is "EU".
14	Fishing activity category National *	String	O	Code list	Fishing activity category (= métier) – National level as defined by each country as child nodes (substratification) of the level-5 codes.
15	Fishing activity category European lvl 5 *	String	O [2]	Code list	Fishing activity category (= métier) – Level 5 as defined in a hierarchical structure in the Data Collection Regulation (EC 2008a, 2008b).
16	Fishing activity category European lvl 6 *	String	O [2, 3]	Code list	Fishing activity category (= métier) – Level 6 as defined in a hierarchical structure in the Data Collection Regulation (EC, 2008a, 2008b). Level 6 is further specified by the Regional Coordination Meetings (EC RCMs, Council Regulation [EC] No. 1543/2000).
17	Harbour *	String	O	Code list	Landing harbour.
18	Vessel length category *	String	M	Code list	Grouping of vessels into fleet segments according to the vessel length categories defined in the Data Collection Regulation (EC, 2008a, 2008b).
19	Unallocated catch weight	Integer	M	–2 000 000 000–2 000 000 000	Whole weight in kg.
20	Area misreported catch weight	Integer	M	–2 000 000 000 – 2 000 000 000	Whole weight in kg.
21	Official landings weight	Integer	M	0–2 000 000 000 (i.e. 2 million t)	Whole weight in kg.
22	Landings multiplier	Dec(3)	O	0.500–2.000	Multiplier to correct official landings for, e.g., overweight in fish boxes. [4]
23	Official landings value	Integer	O	1–100 000 000	In € [5]. Official sales value of the landings.

* = key field

[1] In the special case where a vessel lands the catch in country A, but the catch is transported directly to country B, it should be registered as if it had been landed in country B.

[2] Either "Fishing activity category European lvl 5" or "Fishing activity category European lvl 6" should be provided, but not both. It is preferable to use level 6 because this includes the level 5 information (criteria to be checked).

[3] "Fishing activity category European lvl 6" is mandatory for data from 2009 onwards (criteria to be checked).

[4] Weight can be entered as fresh weight or as estimated weight based on a statement of the number of fish boxes sold to the first buyer. Optionally, a standard correction factor (landings multiplier) can be applied if it is assumed that the boxes, as a rule, contain a certain percentage of overweight.

[5] Use exchange rate at the time of sale.

2.3.7 Commercial fisheries effort statistics record (CE)

Order	Name	Type	Req.	Basic checks	Comments
1	Record type *	String	M		Fixed value CE.
2	Vessel flag country *	String	M	Code list	ISO 31661 – alpha-3 codes. The flag country of the vessel.
3	Year *	Integer	M	Code list	1 900 – 3 000.
4	Quarter *	Integer	M	Code list	1–4.
5	Month *	Integer	O	Code list	1–12.
6	Area *	String	M	Code list	Area level 3 (level 4 for Baltic, Mediterranean, and Black Seas) in the Data Collection Regulation (EC, 2008a, 2008b).
7	Statistical rectangle *	String	O	Code list	Area level 5 in the Data Collection Regulation (EC, 2008a, 2008b). This is the ICES statistical rectangles (e.g. 41G9), except for the Mediterranean and Black Seas, where GFCM geographical subareas (GSAs) are used. [1]
8	Subpolygon *	String	O	Code list	National level as defined by each country as child nodes (substratification) of the ICES rectangles. It is recommended that this is coordinated internationally, e.g. through the Regional Coordination Meetings (EC RCMs).
9	Fishing activity category National *	String	O	Code list	Fishing activity category (= métier) – National level as defined by each country as child nodes (substratification) of the level-5 codes.
10	Fishing activity category European lvl 5 *	String	O [1]	Code list	Fishing activity category (= métier) – Level 5 as defined in a hierarchical structure in the Data Collection Regulation (EC, 2008a, 2008b).
11	Fishing activity category European lvl 6 *	String	O [1, 2]	Code list	Fishing activity category (= métier) – Level 6 as defined in a hierarchical structure in the Data Collection Regulation (EC, 2008a, 2008b). Level 6 is further specified by the Regional Coordination Meetings (EC RCMs, Council Regulation [EC] No. 1543/2000).
12	Harbour *	String	O	Code list	Landing harbour.
13	Vessel length category *	String	M	Code list	Grouping of vessels into fleet segments according to the vessel length categories defined in the Data Collection Regulation (EC, 2008a, 2008b).
14	Number of trips	Integer	M	1–50 000	[3, 4]
15	Number of sets/hauls	Integer	O	1–250 000	
16	Fishing time/soaking time	Integer	O	1–1 200 000	In hours.
17	kW-days	Integer	O	1–2 000 000	In kW days.
18	GT-days	Integer	O	1–750 000	In GT (Gross Tonnage) days.
19	Days at sea	Integer	O	1–25 000	In days. [5]

*** = key field**

[1] Either "Fishing activity category European lvl 5" or "Fishing activity category European lvl 6" should be provided, but not both. It is preferable to use level 6 because this includes the level 5 information (criteria to be checked).

[2] "Fishing activity category European lvl 6" is mandatory for data from 2009 onwards (criteria to be checked).

[3] If a trip covers more than one rectangle/SubPolygon, the rectangle with the most fishing is used.

[4] A trip is defined as the period between when a vessel departs from a port (or factory ship) and arrives at a port (or factory ship) for discharge of the catch.

[5] A day at sea shall be measured as any continuous period of 24 hours (or part thereof) when a vessel is absent from port. The time from when the continuous period is measured is at the discretion of the Member State whose flag is flown by the vessel concerned.

2.4 XML file format definitions

The XML file structure is defined in schema files; the schema file type used is XSD, as recommended by W3C (Biron *et al.*, 2004; Fallside and Walmsley, 2004; Thompson *et al.*, 2004). The XSD schema files refer to XSD enumerator files containing the code lists; these files are not printed in the report because the codes are tabulated in Annex 4. The files can be obtained from the FishFrame support.

2.4.1 Commercial fisheries sampling data (CS)

```
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	<xsd:include schemaLocation="Enumerators\AgingMethod.xsd"/>
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	<xsd:include schemaLocation="Enumerators\Area.xsd"/>
	<xsd:include schemaLocation="Enumerators\CatchCategory.xsd"/>
	<xsd:include schemaLocation="Enumerators\CatchRegistration.xsd"/>
	<xsd:include schemaLocation="Enumerators\Country.xsd"/>
	<xsd:include schemaLocation="Enumerators\FishingActivityCategory_National2.xsd"/>
	<xsd:include schemaLocation="Enumerators\FishingActivityCategory_EU5.xsd"/>
	<xsd:include schemaLocation="Enumerators\FishingActivityCategory_EU6.xsd"/>
	<xsd:include schemaLocation="Enumerators\FishingValidity.xsd"/>
	<xsd:include schemaLocation="Enumerators\Gear.xsd"/>
	<xsd:include schemaLocation="Enumerators\Harbour.xsd"/>
	<xsd:include schemaLocation="Enumerators\LandingCategory.xsd"/>
	<xsd:include schemaLocation="Enumerators\LengthCode.xsd"/>
	<xsd:include schemaLocation="Enumerators\MaturityStagingMethod.xsd"/>
	<xsd:include schemaLocation="Enumerators\MaturityScale.xsd"/>
	<xsd:include schemaLocation="Enumerators\MaturityStage.xsd"/>
	<xsd:include schemaLocation="Enumerators\OtolithSide.xsd"/>
	<xsd:include schemaLocation="Enumerators\Project.xsd"/>
	<xsd:include schemaLocation="Enumerators\StatisticalRectangle.xsd"/>
	<xsd:include schemaLocation="Enumerators\SamplingMethod.xsd"/>
	<xsd:include schemaLocation="Enumerators\SamplingType.xsd"/>
	<xsd:include schemaLocation="Enumerators\SelectionDevice.xsd"/>
	<xsd:include schemaLocation="Enumerators\Sex.xsd"/>
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	<xsd:include schemaLocation="Enumerators\Species.xsd"/>
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	<xsd:include schemaLocation="Enumerators\Stock.xsd"/>
	<xsd:include schemaLocation="Enumerators\SubSamplingCategory.xsd"/>
	<xsd:include schemaLocation="Enumerators\SubPolygon.xsd"/>
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	<xsd:include schemaLocation="Enumerators\Year.xsd"/>
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			<xsd:element name="VesselType" type="tVesselType"/>
			<xsd:element name="Harbour" type="tHarbour"/>
			<xsd:element name="NumberOfHauls" type="tNumberOfHauls" minOccurs="0"/>
			<xsd:element name="DaysAtSea" type="tDaysAtSea" minOccurs="0"/>
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			<xsd:element name="SamplingMethod" type="tSamplingMethod"/>
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```

```
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            <xsd:attribute name="CatchCategory" type="tCatchCategory" use="required"/>
            <xsd:attribute name="LandingCategory" type="tLandingCategory" use="required"/>
            <xsd:attribute name="SizeCategoryScale" type="tSizeCategoryScale"/>
            <xsd:attribute name="SizeCategory" type="tSizeCategory"/>
            <xsd:attribute name="SubSamplingCategory" type="tSubSamplingCategory"/>
        </xsd:complexType>
        <xsd:complexType name="HLType">
            <xsd:sequence>
                <xsd:element name="NoAtLength" type="tNoAtLength"/>
            </xsd:sequence>
            <xsd:attribute name="ln" type="xsd:int"/>
            <xsd:attribute name="Sex" type="tSex"/>
            <xsd:attribute name="LengthClass" type="tLengthClass" use="required"/>
        </xsd:complexType>
        <xsd:complexType name="CAType">
            <xsd:sequence>
                <xsd:element name="LengthCode" type="tLengthCode"/>
                <xsd:element name="AgingMethod" type="tAgingMethod" minOccurs="0"/>
                <xsd:element name="AgePlusGroup" type="tAgePlusGroup"/>
                <xsd:element name="OtolithWeight" type="tOtolithweight" minOccurs="0"/>
                <xsd:element name="OtolithSide" type="tOtolithSide" minOccurs="0"/>
                <xsd:element name="Weight" type="tIndividualMeanWeight" minOccurs="0"/>
                <xsd:element name="MaturityStagingMethod" type="tMaturityStagingMethod" minOccurs="0"/>
                <xsd:element name="MaturityScale" type="tMaturityScale" minOccurs="0"/>
                <xsd:element name="MaturityStage" type="tMaturityStage" minOccurs="0"/>
```

```
        </xsd:sequence>
        <xsd:attribute name="ln" type="xsd:int"/>
        <xsd:attribute name="Station" type="tStationNo"/>
        <xsd:attribute name="Quarter" type="tQuarter"/>
        <xsd:attribute name="Month" type="tMonth"/>
        <xsd:attribute name="Species" type="tSpecies" use="required"/>
        <xsd:attribute name="Sex" type="tSex"/>
        <xsd:attribute name="CatchCategory" type="tCatchCategory" use="required"/>
        <xsd:attribute name="LandingCategory" type="tLandingCategory" use="required"/>
        <xsd:attribute name="SizeCategoryScale" type="tSizeCategoryScale"/>
        <xsd:attribute name="SizeCategory" type="tSizeCategory"/>
        <xsd:attribute name="Stock" type="tStock"/>
        <xsd:attribute name="Area" type="tArea" use="required"/>
        <xsd:attribute name="StatisticalRectangle" type="tStatisticalRectangle"/>
        <xsd:attribute name="SubPolygon" type="tSubPolygon" />
        <xsd:attribute name="LengthClass" type="tLengthClass" use="required"/>
        <xsd:attribute name="Age" type="tAge"/>
        <xsd:attribute name="SingleFishId" type="tSingleFishId" use="required"/>
</xsd:complexType>
<xsd:simpleType name="tTrip">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="999999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tVesselLength">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="3"/>
                <xsd:maxInclusive value="160"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tVesselPower">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="4"/>
                <xsd:maxInclusive value="5500"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tVesselSize">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="1500"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tNumberOfHauls">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="99"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tDaysAtSea">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="60"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tVesselId">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="999999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tQuarter">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="4"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tMonth">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="12"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tStationNo">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="999"/>
```

```
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tDate">
        <xsd:restriction base="xsd:string">
                <xsd:length value="10"/>
                <xsd:pattern value="\d{4}\-\d{2}\-\d{2}"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tFishingDuration">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="5"/>
                <xsd:maxInclusive value="99999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tTimeShot">
        <xsd:restriction base="xsd:string">
                <xsd:length value="5"/>
                <xsd:pattern value="\d{2}:\d{2}"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tLatDegrees">
        <xsd:restriction base="xsd:double">
                <xsd:minInclusive value="20.00000"/>
                <xsd:maxInclusive value="80.00000"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tLonDegrees">
        <xsd:restriction base="xsd:double">
                <xsd:minInclusive value="-31.00000"/>
                <xsd:maxInclusive value="31.00000"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tMainDepth">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tMeshSize">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tMeshSizeSelectionDevice">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="20"/>
                <xsd:maxInclusive value="200"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tWeight">
        <xsd:restriction base="xsd:long">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="9999999999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tLengthClass">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="3999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tNoAtLength">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tAge">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="0"/>
                <xsd:maxInclusive value="99"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tSingleFishId">
        <xsd:restriction base="xsd:int">
```

```
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="99999999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tOtolithweight">
        <xsd:restriction base="xsd:double">
                <xsd:minInclusive value="0.00000"/>
                <xsd:maxInclusive value="99.99999"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tIndividualMeanWeight">
        <xsd:restriction base="xsd:double">
                <xsd:minInclusive value="1.0"/>
                <xsd:maxInclusive value="99999.9"/>
        </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="tNumber">
        <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="999"/>
        </xsd:restriction>
</xsd:simpleType>
</xsd:schema>
```

2.4.2 Commercial fisheries landings data (CL)

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified" at-
tributeFormDefault="unqualified">
        <xsd:include schemaLocation="Enumerators\Area.xsd"/>
        <xsd:include schemaLocation="Enumerators\Country.xsd"/>
        <xsd:include schemaLocation="Enumerators\FishingActivityCategory_National2.xsd"/>
        <xsd:include schemaLocation="Enumerators\FishingActivityCategory_EU5.xsd"/>
        <xsd:include schemaLocation="Enumerators\FishingActivityCategory_EU6.xsd"/>
        <xsd:include schemaLocation="Enumerators\Harbour.xsd"/>
        <xsd:include schemaLocation="Enumerators\LandingCategory.xsd"/>
        <xsd:include schemaLocation="Enumerators\StatisticalRectangle.xsd"/>
        <xsd:include schemaLocation="Enumerators\SizeCategory.xsd"/>
        <xsd:include schemaLocation="Enumerators\SizeCategoryScale.xsd"/>
        <xsd:include schemaLocation="Enumerators\Species.xsd"/>
        <xsd:include schemaLocation="Enumerators\SubPolygon.xsd"/>
        <xsd:include schemaLocation="Enumerators\VesselLengthCategory.xsd"/>
        <xsd:include schemaLocation="Enumerators\Year.xsd"/>
        <xsd:element name="FishFrame" type="FishFrameType"/>
        <xsd:complexType name="FishFrameType">
                <xsd:sequence>
                        <xsd:element name="CL" type="CLType"/>
                </xsd:sequence>
        </xsd:complexType>
        <xsd:complexType name="CLType">
                <xsd:sequence>
                        <xsd:element name="CL_Record" type="CL_RecordType" maxOccurs="unbounded"/>
                </xsd:sequence>
        </xsd:complexType>
        <xsd:complexType name="CL_RecordType">
                <xsd:sequence>
                        <xsd:element name="UnallocatedCatchWeight" type="tCatchWeight"/>
                        <xsd:element name="AreaMisreportedCatchWeight" type="tCatchWeight"/>
                        <xsd:element name="OfficalLandingWeight" type="tLandingWeight"/>
                        <xsd:element name="LandingsMultiplier" type="tLandingMultiplier" minOccurs="0"/>
                        <xsd:element name="OfficalLandingsValue" type="tLandingValue" minOccurs="0"/>
                </xsd:sequence>
                <xsd:attribute name="ln" type="xsd:int"/>
                <xsd:attribute name="LandingCountry" type="tCountry" use="required"/>
                <xsd:attribute name="FlagCountry" type="tCountry" use="required"/>
                <xsd:attribute name="Year" type="tYear" use="required"/>
                <xsd:attribute name="Quarter" type="tQuarter" use="required"/>
                <xsd:attribute name="Month" type="tMonth"/>
                <xsd:attribute name="Area" type="tArea" use="required"/>
                <xsd:attribute name="StatisticalRectangle" type="tStatisticalRectangle"/>
                <xsd:attribute name="SubPolygon" type="tSubPolygon"/>
                <xsd:attribute name="Species" type="tSpecies" use="required"/>
                <xsd:attribute name="LandingCategory" type="tLandingCategory" use="required"/>
                <xsd:attribute name="SizeCategoryScale" type="tSizeCategoryScale"/>
                <xsd:attribute name="SizeCategory" type="tSizeCategory"/>
                <xsd:attribute name="FishingActivityNational" type="tFishingActivityCategory_National2"/>
```

```
		<xsd:attribute name="FishingActivityEUlvl5" type="tFishingActivityCategory_EU5"/>
		<xsd:attribute name="FishingActivityEUlvl6" type="tFishingActivityCategory_EU6"/>
		<xsd:attribute name="Harbour" type="tHarbour"/>
		<xsd:attribute name="VesselLengthCategory" type="tVesselLengthCategory "/>
	</xsd:complexType>
	<xsd:simpleType name="tCatchWeight">
		<xsd:restriction base="xsd:long">
			<xsd:minInclusive value="-2000000000"/>
			<xsd:maxInclusive value="2000000000"/>
		</xsd:restriction>
	</xsd:simpleType>
	<xsd:simpleType name="tLandingWeight">
		<xsd:restriction base="xsd:long">
			<xsd:minInclusive value="0"/>
			<xsd:maxInclusive value="2000000000"/>
		</xsd:restriction>
	</xsd:simpleType>
	<xsd:simpleType name="tLandingMultiplier">
		<xsd:restriction base="xsd:double">
			<xsd:minInclusive value="0.5"/>
			<xsd:maxInclusive value="2.00"/>
		</xsd:restriction>
	</xsd:simpleType>
	<xsd:simpleType name="tLandingValue">
		<xsd:restriction base="xsd:double">
			<xsd:minInclusive value="1"/>
			<xsd:maxInclusive value="100000000"/>
		</xsd:restriction>
	</xsd:simpleType>
	<xsd:simpleType name="tQuarter">
		<xsd:restriction base="xsd:int">
			<xsd:minInclusive value="1"/>
			<xsd:maxInclusive value="4"/>
		</xsd:restriction>
	</xsd:simpleType>
	<xsd:simpleType name="tMonth">
		<xsd:restriction base="xsd:int">
			<xsd:minInclusive value="1"/>
			<xsd:maxInclusive value="12"/>
		</xsd:restriction>
	</xsd:simpleType>
</xsd:schema>
```

2.4.3 Commercial fisheries effort data (CE)

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
attributeFormDefault="unqualified">
	<xsd:include schemaLocation="Enumerators\Area.xsd"/>
	<xsd:include schemaLocation="Enumerators\Country.xsd"/>
	<xsd:include schemaLocation="Enumerators\FishingActivityCategory_National2.xsd"/>
	<xsd:include schemaLocation="Enumerators\FishingActivityCategory_EU5.xsd"/>
	<xsd:include schemaLocation="Enumerators\FishingActivityCategory_EU6.xsd"/>
	<xsd:include schemaLocation="Enumerators\Harbour.xsd"/>
	<xsd:include schemaLocation="Enumerators\StatisticalRectangle.xsd"/>
	<xsd:include schemaLocation="Enumerators\SubPolygon.xsd"/>
	<xsd:include schemaLocation="Enumerators\VesselLengthCategory.xsd"/>
	<xsd:include schemaLocation="Enumerators\Year.xsd"/>
	<xsd:element name="FishFrame" type="FishFrameType"/>
	<xsd:complexType name="FishFrameType">
		<xsd:sequence>
			<xsd:element name="CE" type="CEType"/>
		</xsd:sequence>
	</xsd:complexType>
	<xsd:complexType name="CEType">
		<xsd:sequence>
			<xsd:element name="CE_Record" type="CE_RecordType" maxOccurs="unbounded"/>
		</xsd:sequence>
	</xsd:complexType>
	<xsd:complexType name="CE_RecordType">
		<xsd:sequence>
			<xsd:element name="VesselLengthCategory" type="tVesselLengthCategory"/>
			<xsd:element name="NumberOfTrips" type="tTrips"/>
			<xsd:element name="NumberOfHauls" type="tHauls" minOccurs="0"/>
			<xsd:element name="FishingTime" type="tFishingTime" minOccurs="0"/>
			<xsd:element name="KWDays" type="tKWDays" minOccurs="0"/>
```

```
                <xsd:element name="GTDays" type="tGTDays" minOccurs="0"/>
                <xsd:element name="DaysAtSea" type="tDaysAtSea" minOccurs="0"/>
            </xsd:sequence>
            <xsd:attribute name="ln" type="xsd:int"/>
            <xsd:attribute name="FlagCountry" type="tCountry" use="required"/>
            <xsd:attribute name="Year" type="tYear" use="required"/>
            <xsd:attribute name="Quarter" type="tQuarter" use="required"/>
            <xsd:attribute name="Month" type="tMonth"/>
            <xsd:attribute name="Area" type="tArea" use="required"/>
            <xsd:attribute name="StatisticalRectangle" type="tStatisticalRectangle"/>
            <xsd:attribute name="SubPolygon" type="tSubPolygon"/>
            <xsd:attribute name="FishingActivityNational" type="tFishingActivityCategory_National2"/>
            <xsd:attribute name="FishingActivityEUlvl5" type="tFishingActivityCategory_EU5"/>
            <xsd:attribute name="FishingActivityEUlvl6" type="tFishingActivityCategory_EU6"/>
            <xsd:attribute name="Harbour" type="tHarbour"/>
            <xsd:attribute name="VesselLengthCategory" type="tVesselLengthCategory "/>
        </xsd:complexType>
        <xsd:simpleType name="tTrips">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="50000"/>
            </xsd:restriction>
        </xsd:simpleType>
        <xsd:simpleType name="tHauls">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="250000"/>
            </xsd:restriction>
        </xsd:simpleType>
        <xsd:simpleType name="tFishingTime">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="1200000"/>
            </xsd:restriction>
        </xsd:simpleType>
        <xsd:simpleType name="tKWDays">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="750000"/>
            </xsd:restriction>
        </xsd:simpleType>
        <xsd:simpleType name="tGTDays">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="100000"/>
            </xsd:restriction>
        </xsd:simpleType>
        <xsd:simpleType name="tDaysAtSea">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="1000"/>
            </xsd:restriction>
        </xsd:simpleType>
        <xsd:simpleType name="tQuarter">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="4"/>
            </xsd:restriction>
        </xsd:simpleType>
        <xsd:simpleType name="tMonth">
            <xsd:restriction base="xsd:int">
                <xsd:minInclusive value="1"/>
                <xsd:maxInclusive value="12"/>
            </xsd:restriction>
        </xsd:simpleType>
</xsd:schema>
```

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Acknowledgements

The authors thank the FishFrame users and developers, members of the ICES expert groups, and the COST project group for contributing to the development of this format.

We give special thanks to the users from the Baltic Sea institutes, who have patiently revised their data-extraction scripts and re-uploaded their data to FishFrame each time we made a new version of the format.

Annex 1 CSV example files

The following are examples of CSV files.

Commercial fisheries sampling data (CS)

TR,M,DEN,DEN,2005,IN-CHAR,223,,,,4,1,,,,DEN,SelfSampling

HH,M,DEN,DEN,2005,IN-CHAR,223,1,V,H,Lan,Par,20060−81−4,,60,55.00000,17.00000,55.00000,17.00000,25,40G6,,,,Dem_trawl__o, ,OTB_DEF_901−19_0_0,90 ,0,

SL,M,DEN,DEN,2005,IN-CHAR,223,1,Gadus Morhua,,LAN,HUC,EU,4,,25715,25715,cm

HL,M,DEN,DEN,2005,IN-CHAR,223,1,Gadus morhua,LAN,HUC,EU,4,,,630,1

CA,M,DEN,DEN,2005,IN-CHAR,223,1,3,8,Gadus morhua,F,LAN,HUC,EU,4,,25,40G6,,630,3,13,cm,OWR,-,,,2162,,,

Commercial fisheries landings data (CL)

CL,DEN,DEN,2005,1,1,25,39G5,,Gadus morhua,HUC,EU,1,Garn_alm___o,,GNS_DEF_110−156_0_0,,12-<18,5,10,68,1.0346634904,1062.8463104

CL,DEN,DEN,2005,1,1,25,39G5,,Gadus morhua,HUC,EU,2,Garn_alm___o,,GNS_DEF_110−156_0_0,,12-<18,5,10,3793,1.0477585496,49973.534186

Commercial fisheries effort data (CE)

CE,DEN,2005,1,1,25,39G5,,Garn_alm___o,,GNS_DEF_110−156_0_0,,,366,3384,3591,37823,11482,187

CE,DEN,2005,1,1,25,40G6,,Dem_trawl__o,,OTB_DEF_>=105_1_>=110,,,568,694,10680,142393,78848,352

Annex 2 XML example files

The following are examples of XML files.

Commercial fisheries sampling data (CS)

```
<?xml version="1.0" encoding="utf-8"?>
<FishFrame>
	<CS>
		<TR ln="1" SamplingType="M" LandingCountry="TS1" FlagCountry="TS1" Year="2005"
Project="IN-CHAR" Trip="223">
			<VesselType>4</VesselType>
			<NumberOfHauls>1</NumberOfHauls>
			<SamplingCountry>TS1</SamplingCountry>
			<SamplingMethod>SelfSampling</SamplingMethod>
			<HH ln="2" Station="1">
				<FishingValidity>V</FishingValidity>
				<AggregationLevel>H</AggregationLevel>
				<CatchRegistration>Lan</CatchRegistration>
				<SpeciesRegistration>Par</SpeciesRegistration>
				<Date>2006-08-14</Date>
				<FishingDuration>60</FishingDuration>
				<LatDegreesStart>55.00000</LatDegreesStart>
				<LonDegreesStart>17.00000</LonDegreesStart>
				<LatDegreesStop>55.00000</LatDegreesStop>
				<LonDegreesStop>17.00000</LonDegreesStop>
				<Area>25</Area>
				<Rectangle>40G6</Rectangle>
				<FishingActivityNational>Dem_trawl__o</FishingActivityNational>
				<FishingActivityEUlvl6> OTB_DEF_90-119_0_0</FishingActivityEUlvl6>
				<MeshSize>70</MeshSize>
				<SelectionDevice>0</SelectionDevice>
				<SL ln="3" Species="Gadus morhua" CatchCategory="LAN" LandingCatego-
ry="HUC" SizeCategoryScale="EU" SizeCategory="4">
					<Weight>25715</Weight>
					<SubSampleWeight>25715</SubSampleWeight>
					<LengthCode>cm</LengthCode>
					<HL ln="4" LengthClass="630">
						<NoAtLength>1</NoAtLength>
					</HL>
				</SL>
			</HH>
			<CA ln="5" Station="1" Quarter="3" Month="8" Species="Gadus morhua" Sex="F"
CatchCategory="LAN" LandingCategory="HUC" SizeCategoryScale="EU" SizeCategory="4" Area="25"
StatisticalRectangle="40G6" LengthClass="630" Age="3" SingleFishId="13">
				<LengthCode>cm</LengthCode>
				<AgePlusGroup>-</AgePlusGroup>
				<Weight>2162</Weight>
			</CA>
		</TR>
	</CS>
</FishFrame>
```

Commercial fisheries landings data (CL)

```
<?xml version="1.0" encoding="utf-8"?>
<FishFrame>
	<CL>
		<CL_Record ln="1" LandingCountry="TS1" FlagCountry="TS1" Year="2005" Quarter="1"
Month="1" Area="25" StatisticalRectangle="39G5" Species="Gadus morhua" LandingCategory="HUC"
SizeCategoryScale="EU" SizeCategory="1" FishingActivityNational="Garn_alm___o"
FishingActivityEUlvl6="GNS_DEF_110-156_0_0" VesselLengthCategory="12-<18">
			<UnallocatedCatchWeight>5</UnallocatedCatchWeight>
			<AreaMisreportedCatchWeight>10</AreaMisreportedCatchWeight>
			<OfficalLandingWeight>68</OfficalLandingWeight>
			<LandingsMultiplier>1.0346634904</LandingsMultiplier>
			<OfficalLandingsValue>1062.8463104</OfficalLandingsValue>
		</CL_Record>
		<CL_Record ln="2" LandingCountry="TS1" FlagCountry="TS1" Year="2005" Quarter="1"
Month="1" Area="25" StatisticalRectangle="39G5" Species="Gadus morhua" LandingCategory="HUC"
```

```
SizeCategoryScale="EU" SizeCategory="2" FishingActivityNational="Garn_alm___o"
FishingActivityEUlvl6="GNS_DEF_110-156_0_0" VesselLengthCategory="12-<18">
                        <UnallocatedCatchWeight>5</UnallocatedCatchWeight>
                        <AreaMisreportedCatchWeight>10</AreaMisreportedCatchWeight>
                        <OfficalLandingWeight>3793</OfficalLandingWeight>
                        <LandingsMultiplier>1.0477585496</LandingsMultiplier>
                        <OfficalLandingsValue>49973.534186</OfficalLandingsValue>
                </CL_Record>
        </CL>
```

Commercial fisheries effort data (CE)

```
<?xml version="1.0" encoding="utf-8"?>
<FishFrame>
        <CE>
                <CE_Record ln="1" FlagCountry="TS1" Year="2005" Quarter="1" Month="1" Area="25"
StatisticalRectangle="39G5" FishingActivityNational="Garn_alm___o" FishingActivityEUlvl6="GNS_DEF_110-
156_0_0" VesselLengthCategory="12-<18">
                        <NumberOfTrips>366</NumberOfTrips>
                        <NumberOfHauls>3384</NumberOfHauls>
                        <FishingTime>3591</FishingTime>
                        <KWDays>37823</KWDays>
                        <GTDays>11482</GTDays>
                        <DaysAtSea>187</DaysAtSea>
                </CE_Record>
                <CE_Record ln="2" FlagCountry="TS1" Year="2005" Quarter="1" Month="1" Area="25"
StatisticalRectangle="40G6" FishingActivityNational="Dem_trawl__o"
FishingActivityEUlvl6="OTB_DEF_&gt;=105_1_&gt;=110" VesselLengthCategory="12-<18">
                        <NumberOfTrips>568</NumberOfTrips>
                        <NumberOfHauls>694</NumberOfHauls>
                        <FishingTime>10680</FishingTime>
                        <KWDays>142393</KWDays>
                        <GTDays>78848</GTDays>
                        <DaysAtSea>352</DaysAtSea>
                </CE_Record>
        </CE>
</FishFrame>
```

Annex 3 Header rows

Commercial fisheries sampling (CS)

Comma-separated long header rows

TR, Sampling_type, Landing_country, Vessel_flag_country, Year, Project, Trip_number, Vessel_length, Vessel_power, Vessel_size, Vessel_type, Harbour, No_SetsHauls_on_trip, Days_at_sea, Vessel_identifier, Sampling_country, Sampling_method

HH, Sampling_type, Landing_country, Vessel_flag_country, Year, Project, Trip_number, Station_number, Fishing_validity, Aggregation_level, Catch_registration, Species_registration, Date, Time, Fishing_duration, Pos_Start_Lat_dec, Pos_Start_Lon_dec, Pos_Stop_Lat_dec, Pos_Stop_Lon_dec, Area, Statistical_rectangle, Sub_polygon, Main_fishing_depth, Main_water_depth, FAC_National, FAC_EC_lvl5, FAC_EC_lvl6, Mesh_size, Selection_device, Mesh_size_selection_device

SL, Sampling_type, Landing_country, Vessel_flag_country, Year, Project, Trip_number, Station_number, Species, Sex, Catch_category, Landing_category, Comm_size_cat_scale, Comm_size_cat, Subsampling_category, Weight, Subsample_weight, Length_code

HL, Sampling_type, Landing_country, Vessel_flag_country, Year, Project, Trip_number, Station_number, Species, Sex, Catch_category, Landing_category, Comm_size_cat_scale, Comm_size_cat, Subsampling_category, Sex, Length_class, Number_at_length

CA, Sampling_type, Landing_country, Vessel_flag_country, Year, Project, Trip_number, Station_number, Quarter, Month, Species, Sex, Catch_category, Landing_category, Comm_size_cat_scale, Comm_size_cat, Stock, Area, Statistical_rectangle, Sub_polygon, Length_class, Age, Single_fish_number, Length_code, Aging_method, Age_plus_group, Otolith_weight, Otolith_side, Weight, Maturity_staging_method, Maturity_scale, Maturity_stage

Comma-separated short header rows

TR, Smpl_type, Lan_c, V_f_c, Year, Prjt, Trip_no, V_lng, V_pow, V_size, V_type, Harbour, No_SH_trp, Days_sea, V_Id, Smpl_c, Smpl_meth

HH, Smpl_type, Lan_c, V_f_c, Year, Prjt, Trip_no, St_no, F_val, Aggr_lvl, Catch_reg, Sp_reg, Date, Time, F_dur, Pos_Strt_Lat, Pos_Strt_Lon, Pos_Stop_Lat, Pos_Stop_Lon, Area, Rect, S_poly, M_f_depth, M_w_depth, FAC_Nat, FAC_5, FAC_6, Mesh_s, Sel_dev, Mesh_s_sel_dev

SL, Smpl_type, Lan_c, V_f_c, Year, Prjt, Trip_no, St_no, Species, Sex, Catch_cat, Lan_cat, C_size_cat_sc, C_size_cat, Ssmpl_cat, Weight, Ssmple_w, L_code

HL, Smpl_type, Lan_c, V_f_c, Year, Prjt, Trip_no, St_no, Species, Sex, Catch_cat, Lan_cat, C_size_cat_sc, C_size_cat, Ssmpl_cat, Sex, L_class, No_length

CA, Smpl_type, Lan_c, V_f_c, Year, Prjt, Trip_no, St_no, Q, Month, Species, Sex, Catch_cat, Lan_cat, C_size_cat_sc, C_size_cat, Stock, Area, Rect, S_poly, L_class, Age, S_fish_no, L_code, Age_method, Age_pl_gr, Oto_w, Oto_side, Weight, Mat_s_method, Mat_scale, Mat_stage

Commercial fisheries landings statistics (CL)

Comma-separated full header rows

CL, Landing_country, Vessel_flag_country, Year, Quarter, Month, Area, Statistical_Rectangle, Sub_polygon, Species, Landing_category, Comm_size_cat_scale, Comm_size_cat, FAC_National, FAC_EC_lvl5, FAC_EC_lvl6, Harbour, Vessel_length_cat, Unallocated_catch_weigh, Area_misreported_Catch_weight, Official_Landings_weight, Landings_multiplier, Official_landings_value

Comma-separated short header rows

CL, Lan_c, V_f_c, Year, Q, Month, Area, Rect, S_poly, Species, Lan_cat, C_size_cat_sc, C_size_cat, FAC_Nat, FAC_5, FAC_6, Harbour, V_l_cat, Unalloc_c_w, Area_mis_C_w, Off_Lan_w, Lan_multi, Off_lan_val

Commercial fisheries effort statistics (CE)

Comma-separated full header rows

CE, Vessel_flag_country, Year, Quarter, Month, Area, Statistical_Rectangle, Sub_polygon, FAC_National, FAC_EC_lvl5, FAC_EC_lvl6, Harbour, Vessel_length_cat, Number_of_trips, Number_of_SetsHauls, FishingSoaking_time, kW_days, GT_days, Days_at_sea

Comma-separated short header rows

CE, V_f_c, Year, Q, Month, Area, Rect, S_poly, FAC_Nat, FAC_5, FAC_6, Harbour, V_l_cat, No_trp, No_SH, FS_time, kW_days, GT_days, Days_sea

Annex 4 Code lists

Codes are listed in the following tables. When using code lists, be sure to check for updates (see Section 1.3).

Some code lists are described as "open", which means new codes will be added so frequently that it makes no sense to include them in this report. An example is "project". These code lists are to be created and maintained within the applications that utilize this format. Some of the open lists might be added in later versions, e.g."harbour".

Age-plus-group

Code	Description
–	Not an "age-plus-group"
+	An "age-plus-group"

Aging method

Code	Description
OWR	Otolith (winter rings)
Scale	Scale

Aggregation level

Code	Description
H	Haul
T	Trip

Area and statistical rectangle

Areas and statistical rectangles are defined according to the levels in Appendix I of the DCR (EC, 2008b). These are given in the table below, which shows the geographic stratification by regional fisheries organizations.

Geographic stratification by regional fisheries organizations.

	ICES	NAFO	ICCAT	GFCM	CCAMLR	IOTC	OTHER
Level 1	Area	Area	FAO area	Area, e.g. 37 (Mediterranean and Black Seas)	Area, e.g. 48	FAO area	FAO area
Level 2	Subarea, e.g. 27.IV (North Sea)	Subarea, e.g. 21.2 (Labrador)	FAO subarea	Subarea, e.g. 37.1 (Western)	Subarea, e.g. 48.1 (Antarctic peninsula)	FAO subarea	FAO subarea
Level 3	Division, e.g. 27.IV c	Division, e.g. 21.2 H	Division 5° × 5°	Division, e.g. 37.1.2 (Gulf of Lyons)	Division, e.g. 58.5.1 (Kerguelen Islands)	Division 5° × 5°	Division 5° × 5°
Level 4	Subdivision, e.g. 27.III.c.22	–	–	GSA, e.g. GSA 1	–	–	–
Level 5	Rectangle 30' × 1°	Rectangle	Rectangle 1° × 1°	–	Rectangle 30' × 1°	Rectangle 1° × 1°	Rectangle 1° × 1°

The areas, except for statistical rectangles and geographical subareas (GSAs), are FAO areas (see http://www.fao.org/fishery/area/search). This website also links to definitions of all the areas (see http://datacollection.jrc.ec.europa.eu/c/document_library/get_file?folderId=2502&name=DLFE-261.xls).

For tables of the GFCM (General Fishery Commission of the Mediterreanean) Geographical Sub-Areas (GSAs) used in the Mediterranean and Black Seas consult ftp://ftp.fao.org/FI/DOCUMENT/gfcm/web/GSAsTable.pdf.

The ICES statistical rectangles can be found in a shapefile at http://www.ices.dk/aboutus/icesareas/ICES_rectangles.zip.

Sampling type

Code	Description
M	Market sampling of known fishing trips
S	Sea sampling
V	Vendor
D	Market sampling of mixed trips (Day trips to market)

Catch category

Code	Description
Dis	Discards
Lan	Landings

Catch registration

Code	Description
All	All
Lan	Landings
Dis	Discards
Non	None

Country

Refer to the FAO reference list (see http://www.fao.org/countryprofiles/iso3 list.asp).

Commercial size category scale

Code	Description
EU	Official EU size sorting
English	National English sorting scale
Nephrops	Sorting of *Nephrops norvegicus*

Commercial size category

Code	Commercial size category scale	Description
1	EU	EU scale: 1
2	EU	EU scale: 2
3	EU	EU scale: 3
4	EU	EU scale: 4
5	EU	EU scale: 5
6	EU	EU scale: 6
7	EU	EU scale: 7
0	*Nephrops*	Whole
1	*Nephrops*	Tails only

Fishing activity category National

This is an open code list. The string should not exceed ten characters.

Fishing activity category European level 5

Any level-5 code is uniquely defined by the gear type (level 4) and target assemblage (level 5). When coding for level 4, follow the 2–3 letter abbreviation system of the FAO International Standard Statistical Classification of Fishing Gear (ISSCFG; see ftp://ftp.fao.org/FI/DOCUMENT/cwp/handbook/annex/AnnexM1fishinggear.pdf;). For level 5, follow the three-letter coding system in the table below.

Code	Description
ANA	Anadromous species
CAT	Catadromous species
CEP	Cephalopods
CRU	Crustaceans
DWS	Deep-water species
DEF	Demersal fish
DES	Demersal species
FIF	Finfish
FWS	Freshwater species
GEL	Glass eel
LPF	Large pelagic fish
MOD	Mixed cephalopods and demersal fish
MCD	Mixed crustaceans and demersal fish
MPD	Mixed pelagic and demersal fish
MDD	Mixed demersal and deep-water species
MOL	Molluscs
SPF	Small pelagic fish
SLP	Small and large pelagic fish

The coding system for a level-5 fishing activity category is:

GearType_TargetAssemblage.

The code always consists of 6–7 characters. Examples:

- DRB_MOL (= dredging for molluscs from a boat)
- GNS_DEF (= set gillnet targeting demersal fish)

- OTB_DEF (= bottom trawl [otter] targeting demersal fish)
- OTT_CRU (= otter twin trawl [multi trawl] targeting crustaceans)
- PS_SPF (= purse seining for small pelagic fish)

Fishing activity category European level 6

Any level-6 code is uniquely defined by the gear type (level 4), the target assemblage (level 5), and the mesh size and other selective devices (level 6). For coding purposes for level 6, follow the pattern

MeshSize(Range)_SelectiveDevice_MeshSize(Range)InSelectiveDevice

where MeshSize(Range) and MeshSize(Range)InSelectiveDevice is coded as either a range ("9–9") or a border value (">= 105").

The coding for SelectiveDevice is given below.

For gear that does not have a mesh size or selection device, use "-". For fisheries where there is no regulation on mesh size or mesh size in selection device, use "0".

Examples:

- DRB_MOL_>= 80_0_0 (= dredging for molluscs from a boat, mesh size equal to or larger than 80 mm, no regulation on selection device)
- GNS_DEF_>= 220_0_0 (= set gillnet targeting demersal fish, mesh size equal to or larger than 220 mm, no regulation on selection device)
- OTB_DEF_90–119_0_0 (= bottom trawl [otter] targeting demersal fish, mesh size between 90 and 119 mm, no regulation on selection device)
- OTT_CRU_>= 70_2_>= 35 (= otter twin trawl [multi trawl] targeting crustaceans), mesh size equal to or larger than 70 mm, grid with a mesh size of minimum 55 mm)
- LLS_DEF_-_-_- (= longline fishery for demersal fish)

Fishing validity

Code	Description
I	Invalid fishing operation
V	Valid fishing operation

Gear type

Use the FAO International Standard Statistical Classification of Fishing Gear (ISSCFG; see ftp://ftp.fao.org/FI/DOCUMENT/cwp/handbook/ annex/ AnnexM1fishinggear.pdf), as given in the table below.

Code	Description
PS	Purse seine. Surrounding net with purse lines.
LA	Lampara seine. Surrounding net without purse lines.
SB	Beach seines
SV	Boat or vessel seines
SDN	Danish seines
SSC	Scottish seines
SPR	Pair seines
SX	Seine nets (not specified)
TBB	Bottom beam trawls

OTB	Bottom otter trawls[1]
PTB	Bottom pair trawls
TBN	Bottom *Nephrops* trawls
TBS	Bottom shrimp trawls
TB	Bottom trawls (not specified)
OTM	Midwater otter trawls[1]
PTM	Midwater pair trawls
TMS	Midwater shrimp trawls
TM	Midwater trawls (not specified)
OTT	Otter twin trawls
OT	Otter trawls (not specified)
PT	Pair trawls (not specified)
TX	Other trawls (not specified)
DRB	Boat dredge
DRH	Hand dredge
LNP	Portable lift nets
LNB	Boat-operated lift nets
LNS	Shore-operated stationary lift nets
LN	Lift nets (not specified)
FCN	Cast nets
FG	Falling gear (not specified)
GNS	Set gillnets (anchored)
GND	Driftnets
GNC	Encircling gillnets
GNF	Fixed gillnets (on stakes)
GTR	Trammel nets
GTN	Combined gillnets-trammelnets
GEN	Gillnets and entangling nets (not specified)
GN	Gillnets (not specified)
FPN	Stationary uncovered poundnets
FPO	Pots
FYK	Fyke nets
FSN	Stownets
FWR	Barriers, fences, weirs, etc.
FAR	Aerial traps
FIX	Traps (not specified)
LHP	Handlines and pole-lines (hand-operated)[2]
LHM	Handlines and pole-lines (mechanized)[2]
LLS	Set longlines
LLD	Drifting longlines
LL	Longlines (not specified)
LTL	Trolling lines
LX	Hooks and lines (not specified)[3]
HAR	Harpoons
HMP	Pumps
HMD	Mechanized dredges
HMX	Harvesting machines (not specified)
MIS	Miscellaneous gear[4]
RG	Recreational fishing gear

[1]Fisheries agencies may indicate side and stern bottom trawls as OTB-1 and OTB-2, and side and stern midwater trawls as OTM-1 and OTM-2.

[2]Including jigging lines.

[3]Code LDV for dory-operated line gears will be maintained for historical data purposes.

[4]Includes: hand and landing nets; drive-in nets; gathering by hand with simple hand implements, with or without diving equipment; poisons and explosives, trained animals; and electrical fishing.

Harbour

This is an open code list. The string should not exceed ten characters in length.

Landing category

Code	Description
HUC	Human consumption
IND	Industry

Length code

Code	Description
scm	Semi-centimetre (5×10^{-3} m)
cm	Centimetre
mm	Millimetres
25 mm	2.5 centimetres (2.5×10^{-2} m)
5 cm	5 centimetres

Maturity scale

Code	Description
1–4	The 1–4 scale
1–5	The 1–5 scale
1–8	The 1–8 scale
Cru	Crustacean scale

Maturity stage

Code	Maturity scale	Description
1	1–4	–
2	1–4	–
3	1–4	–
4	1–4	–
1	1–5	–
2	1–5	–
3	1–5	–
4	1–5	–
5	1–5	–
1	1–8	–
2	1–8	–
3	1–8	–
4	1–8	–
5	1–8	–
6	1–8	–
7	1–8	–
8	1–8	–
0	Cru	Berried, i.e. with eggs

1	Cru	Not berried, i.e. without eggs

Maturity staging method

Code	Description
Visual	Visual
Hist	Histological

Otolith side

Code	Description
R	Right
L	Left

Project

This is an open code list. The string should not exceed ten characters in length.

Sampling method

Code	Description
Observer	Sampling by observer
SelfSampling	Sampling by fishers

Selection device

Code	Description
1	Exit window or panel
2	Grid
0	Not present

Sex

Code	Description
F	Female
M	Male
T	Transitional (during sex change)

Species

Only the FAO reference is valid (see ftp://ftp.fao.org/FI/stat/ data/ASFIS_sp.zip).

Few species have not defined the stock(s) based on area definitions recognized by FishFrame (e.g. Gulf of Riga Herring). In these cases, a suffix is added to the scientific species name. The following species have a suffix added:

Stock name	Species name
Gulf of Riga Herring	*Clupea harengus-gor*

Species registration

Code	Description
All	All
Par	Partial
Non	None

Stock

Codes of stocks are adopted by RFMOs (Regional Fishstock Management Organizations) for assessment purposes. The codes for stocks assessed in ICES are listed below.

Code	Description
anb-7b-k8a-b	Anglerfish (*Lophius budegassa*) in Divisions VIIb–k and VIIIa and b
anb-8c9a	Anglerfish (*Lophius budegassa*) in Divisions VIIIc and IXa
ane-bisc	Anchovy in Subarea VIII (Bay of Biscay)
ane-pore	Anchovy in Division IXa
ang-ivvi	Anglerfish (*Lophius piscatorius*) in Division IIIA and Subareas IV (North Sea) and VI (west of Scotland and Rockall)
anp-7b-k8a-b	Anglerfish (*Lophius piscatorius*) in Divisions VIIb-k and VIIIa and b
anp-8c9a	Anglerfish (*Lophius piscatorius*) in Divisions VIIIc and IXa
bli-comb	Blue ling (*Molva dypterygia*)
bll-2232	Brill in Subdivisions 22–32
cap-bars	Barents Sea capelin (Subareas I and II, excluding Division IIa west of 5°W)
cap-icel	Capelin in Iceland–East Greenland–Jan Mayen Area Division IIa west of 5°W)
cod-2224	Cod in Subdivisions 22–24
cod-2532	Cod in Subdivisions 25–32
cod-3a47d	Cod in (Skagerrak), Subarea IV, and Division VIId.
cod-7bc	Cod in the West of Ireland (Divisions VIIb and c)
cod-7e-k	Cod in Divisions VIIe–k
cod-arct	North-East Arctic cod (Subareas I and II)
cod-coas	Norwegian coastal cod
cod-ech	Cod in the English Channel (Divisions VIIe–h)
cod-ewgr	Greenland cod (ICES Subarea XIV and NAFO Subarea 1)
cod-farb	Faroe Bank cod (Subdivision Vb2)
cod-farp	Faroe Plateau cod (Subdivision Vb1)
cod-iceg	Icelandic cod (Division Va)
cod-iris	Cod in Division VIIa (Irish Sea)
cod-kat	Cod in the Kattegat (part of Division IIIa)
cod-rock	Cod in Division VIb (Rockall)
cod-scow	Cod in Division VIa (West of Scotland)
dab-2232	Dab in Subdivisions 22–32
fle-2232	Flounder in Subdivisions 22–32
fle-2425	Flounder in Subdivisions 24 and 25
ghl-arct	Greenland Halibut (Subareas I and II)
ghl-grn	Greenland halibut in Subareas V and XIV
had-3a4	Haddock in Division IIIa and Subarea IV (North Sea)
had-7b-k	Haddock in Divisions VIIb-k
had-arct	North-East Arctic haddock (Subareas I and II)
had-faro	Faroe haddock (Division Vb)
had-iceg	Icelandic haddock (Division Va)
had-iris	Haddock in Division VIIa (Irish Sea)

had-rock	Haddock in Division VIb (Rockall)
had-scow	Haddock in Division VIa (West of Scotland)
her-25–2932	Herring in Subdivisions 25–29 and 32 minus Gulf of Riga
her-30	Herring in Subdivision 30 (Bothnian Sea)
her-31	Herring in Subdivision 31 (Bothnian Bay)
3a22–24	Herring in Division IIIa and Subdivisions 22–24 (spring spawners)
her-43a7d	Herring in Divisions VIId and IIIa (autumn spawners)
her-clyd	Clyde herring (Division VIa)
her-cs	Herring South and SouthWest of Ireland (New)
her-irls	Celtic Sea and Division VIIj herring
her-irlw	Herring in Divisions VIa (South) and VIIb and c
her-nirs	Irish Sea herring (Division VIIa)
her-noss	Norwegian spring-spawning herring
her-riga	Herring in the Gulf of Riga
her-vasu	Icelandic summer-spawning herring (Division Va)
her-vian	Herring in Division VIa (North)
hke-nrtn	Hake – northern stock (Division IIIa, Subareas IV, VI, and VII, and Divisions VIIIa and b)
hke-soth	Hake – southern stock (Divisions VIIIc and IXa)
hom-nrtn	North Sea horse mackerel (Divisions IIIa–e, IVb and c, and VIId)
hom-soth	Southern horse mackerel (Divisions VIIIc and IXa)
hom-west	Western horse mackerel (Divisions IIa, IVa, Vb, VIa, VIIa–c, e–k, and VIIIa, b, d, and e)
lin-comb	Ling (*Molva molva*) /?ADD– combined stock
mac-nea	Mackerel (combined Southern, Western and North Sea spawning component) /?ICES LIST GIVES: Mackerel (combined North-East Atlantic)
mac-nsea	Mackerel in the North Sea Area (Divisions IIa and IIIa, and Subarea IV)
mac-soth	Mackerel in the Southern Area (Divisions VIIIc and IXa)
meg-scrk	Megrim in Subarea VI (west of Scotland and Rockall)
mgb-8c9a	Megrim (*Lepidorhombus boscii*) in Divisions VIIIc and IXa
mgw-78 /?mgw-78abde	Megrim (*Lepidorhombus whiffiagonis*) in Subarea VII and Divisions VIIIa, b, d, and e
mgw-8c9a	Megrim (*Lepidorhombus whiffiagonis*) in Divisions VIIIc and IXa
nop-nsea	Norway pout in Subarea IV and Division IIIa
nop-scow	Norway pout in Division VIa (West of Scotland)
pan-arct	Northern prawn (*Pandalus borealis*)
pan-barn	*Pandalus borealis* in the Barents Sea (Subarea I)
pan-farn	*Pandalus borealis* in Division IVb (Farn Deeps)
pan-flad	*Pandalus borealis* in Division IVa (Fladen Ground)
pan-sknd	*Pandalus borealis* in Divisions IIIa and IVa East (Skagerrak and Norwegian Deeps)
ple-2232	Plaice in Subdivisions 22–32
ple-7bc	Plaice in the West of Ireland (Divisions VIIb and c)
ple-7hk	Plaice in the Southwest of Ireland (Divisions VIIh and k)
ple-celt	Celtic Sea plaice (Divisions VIIf and g)
ple-eche	Plaice in Division VIId (Eastern English Channel)
ple-echw	Plaice in Division VIIe (Western English Channel)
ple-iris	Plaice in Division VIIa (Irish Sea)
ple-kask	Plaice in Division IIIa (Kattegat–Skagerrak)
ple-kat	Plaice in the Kattegat (part of Division IIIa)
ple-nsea	Plaice in Subarea IV (North Sea)
sai-3a46	Saithe in Division IIIa (Skagerrak) and Subareas IV and VI
sai-arct	North-East Arctic saithe (Subareas I and II)
sai-faro	Faroe saithe (Division Vb)
sai-icel	Icelandic saithe (Division Va)

sal-2431	Salmon in the Main Basin and Gulf of Bothnia (Subdivisions 24–3 1)
sal-32	Salmon in the Gulf of Finland (Subdivision 32)
san-3a4	Sandeel in Division IIIa and Subarea IV
san-kask	Sandeel in Division IIIa (Kattegat and Skagerrak)
san-nsea	Sandeel in Subarea IV
san-scow	Sandeel in Division VIa
san-shet	Sandeel in the Shetland Area
sar-soth	Sardine in Divisions VIIIc and IXa
smn-5614	Deep-sea *Sebastes mentella* in Subareas V, VI, and XIV
smn-arct	*Sebastes mentella* in Subareas I and II
smn-ocn	Pelagic fishery for *Sebastes mentella* in the Irminger Sea
smr-561214	*Sebastes marinus* in Subareas V, VI, XII, and XIV
smr-arct	*Sebastes marinus* in Subareas I and II
smr-grn	*Sebastes marinus* in Subareas V, VI, XII, and XIV
sol_7bc	Sole in the West of Ireland (Divisions VIIb and c)
sol-7hk	Sole in the Southwest of Ireland (Divisions VIIh and k)
sol-bisc	Sole in Divisions VIIIa and b (Bay of Biscay)
sol-eche	Sole in Division VIId (Eastern English Channel)
sol-echw	Sole in Division VIIe (Western English Channel)
sol-iris	Sole in Division VIIa (Irish Sea)
sol-kask	Sole in Division IIIa
sol-nsea	Sole in Subarea IV (North Sea)
spr-2232	Sprat in Subdivisions 22–32
spr-ech	Sprat in Divisions VIId and e
spr-kask	Sprat in Division IIIa
spr-nsea	Sprat in the North Sea (Subarea IV)
trt-bal	Sea trout in Subdivisions 22–32
tur-2232	Turbot in Subdivisions 22–32
tus-comb	Tusk (*Brosme brosme*)
whb-comb	Blue whiting – combined stock (Subareas I–IX, XII, and XIV)
whg-47d	Whiting in Subarea IV (North Sea) and Division VIId (Eastern English Channel)
whg-7e-k	Whiting in Divisions VIIe–k
whg-iris	Whiting in Division VIIa (Irish Sea)
whg-kask	Whiting in Division IIIa (Kattegat-Skagerrak)
whg-rock	Whiting in Division VIb (Rockall)
whg-scow	Whiting in Division VIa (West of Scotland))
whi-river	Whitefish (river spawning)
whi-sea	Whitefish (sea spawning)

Subpolygon

This is an open code list. The string should not exceed ten characters in length.

Subsampling category

Code	Description
Small	Small
Medium	Medium
Large	Large

Vessel length category

The vessels are grouped by their LOA (length overall). The grouping follows EC (2008b). Note that, up to 12 m, there are two incompatible classifications: a 6 m separation, used in the Mediterranean and Black Seas, and a 10 m separation, used in other areas.

Code	Description
<10	LOA: 0–10 m
10-<12	LOA: 10–12 m
<6	LOA: 0–6 m
6-<12	LOA: 6–12 m
12-<18	LOA: 12–18 m
18-<24	LOA: 18–24 m
24-<40	LOA: 24–40 m
>40	LOA: 40 m and greater

Vessel type

Code	Description
1	Stern trawler
2	Sea side trawler
3	Gill-netter
4	Other boats

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