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CWP ad-hoc Task Group on “Reference harmonization for capture fisheries and aquaculture”

Implementation’s guide of the CWP standard for reference data harmonization

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[Executive Summary](#)

This document presents a proposal of guidance for the implementation of the CWP standard for reference harmonization, which established conceptually data structures. This document is presented at the CWP 26th session and feedback from CWP members is sought to provide the mandate to further elaborate the contents and develop the concept of CWP catalogue. This is intended to be a living document that will evolve over time as more is taken from specific use cases and requirement of the CWP members.

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1. Scope

The objective of the CWP ad-hoc Task Group on “Reference harmonization for capture fisheries and aquaculture” is to lay basis for establishing data-sharing agreement as practical work arrangements between agencies involved in a data workflow. This is expected to reduce data reporting burden for data producers and to improve data quality by mainstreaming the cross-checking and reconciliation of information from national sources. The Task Group established the CWP standard for reference harmonization which consists of a set of data structures and harmonized statistical concepts and related metadata.

The present document put forward the rules to be followed when implementing the CWP standard for reference harmonization in various contexts. The rules outlined in this document are recommended best practices that should be adhered to by statistics producers (e.g. CWP members) for the specific purpose to enforce business logic at the schematic and database-levels for dissemination and exchange of information.

This implementation document could be used in conjunction with data sharing agreement or any other formal agreements that exist between the partners. It sets the core rules applicable at national, regional and global organizations and should form the basis of data sharing agreements established to ensure interoperable data. This will minimize time and costs of mapping data elements to standard terminology and will improve multilateral exchange.

As a first draft, the focus will be on the “Catch” data structure. After the first review by CWP parties, similar principles will be established for the other data structures namely: Capture, Catch and Effort, Logbooks and Aquaculture.

2. Audience

This guide serves as a reference for the staff responsible for producing statistics at national and CWP members’ level who wish to share and / or process data created according to the specification of the CWP standard for reference harmonization. The language used in the document is not IT focused, as the audience is mainly officers responsible of implementation of management applications (e.g. database managers) and not necessarily IT platform and system developers (e.g. users of Postgresql, Oracle).

3. Levels of implementation

The following levels relate to the implementation of the CWP standard for reference harmonization.

3.1. Schematic level

These are the steps to define the structure (schema) of the data to be exchanged and select the major component of the structure:

- Scope or domain of the data collection (e.g. Nominal, catch, Logbooks, catch and effort..)
- Classification system (standards to be used)
- Selection of concepts.

3.2. Concepts level

Additional concepts could be added to the global structure defined by CWP to accommodate the requirement for the data exchange (e.g. adding the concepts “discards” or “sampling areas”).

3.3 Sematic level

The content of the schema and concepts should be defined to be understood by humans or machines. This is developed in the next section where main statistical concepts are described with related codes and constraints. At this level, the metadata should be specified so for instance codelists, datasets can be discoverable and interoperable with other information systems

4. Coding system and constraints

This chapter describes codes, codelist and constraints recommended for use.

4.1 Flag Entity

It denotes the administrative or political entity where the fish was caught, produced or landed. The FAO statistical standard for the FAO Standard Country or Area Codes for Statistical Use is used as reference. It is based on the *"Standard Country or Area Codes for Statistical Use"* which is owned by the UN Statistics Division (UNSD) and commonly referred to as the M49 standard¹.

The three-digit M49 codelist is available the CWP handbook, in the list of countries or areas², where it is mapped to the two- and three-letter codes (ISO Alpha2 and ISO Alpha3) codelist presented by ISO 3166.

The FAO standard presented in Annex 1 is composed of M49 active country or area codes and few others added by FAO in agreement with UNSD.

In the catch data structure, the country or area or entity is designated by one code from the three-digit numerical of M49 codelist.

¹ <https://unstats.un.org/unsd/methodology/m49/>

² <http://www.fao.org/3/bt978e/bt978e.pdf>

4.2 Fishing area

It refers to the geographic area which could be presented according to one of the following standard classifications:

4.2.1 FAO Major Fishing Areas for statistical purposes and their breakdown³ are arbitrary areas historically determined coinciding to the greatest extent possible to the areas of competence of other fishery commissions when existing. This system facilitates comparison of data, and improves the possibilities of cooperation in statistical matters in general.

The codes are selected from this list: <http://www.fao.org/3/bt979e/bt979e.pdf>.

4.2.2 EEZ from Marine Regions is managed by VLIZ the Flanders Marine Institute⁴ and presents the relational classification list of geographic names, coupled with information and maps of the geographic location of these features. It is considered the standard reference for Maritime Boundaries representing the Exclusive Economic Zone (EEZ) of the world.

The codes correspond to the **Marine Regions Geographic Identifier (MRGI)**:
<http://www.marineregions.org/mrgid.php>.

4.2.3 RFB competence area

The codes correspond to the acronyms of the Regional Fisheries Bodies (RFBs). The boundaries of their area of competence are presented here:

<http://www.fao.org/figis/geoserver/factsheets/rfbs.html>

The codes correspond to the acronym of the RFB: <http://www.fao.org/fishery/rfb/en> (see also Annex 2).

4.3 Time

For national and regional fishery statistics, it is recommended that date and time is recorded in ISO 8601 format using the Gregorian calendar and 24-hour time keeping system. The general format is to record date as YYYY-MM-DD (or YYYYMMDD), time as hh:mm:ss (or hhhmmss), and date time as YYYY-MM-DDThh:mm:ss (or YYYYMMDDThhmmss); seconds may be provided optionally.

For example: UTC date time 2018-10-31T15:07Z (where Z denotes a zero UTC offset).

For the “Catch data structure”, the time unit corresponds to the Year, an integer, recorded as 4 digits. For example: 2019, 2018.

In particular cases, the time unit is made in two rather than one single column, in order to model the START / END of the time period that the measurement refers to.

In other cases, Time is submitted in number of months, with “n” that can be anything from 2 to 11: as the number of months cannot be split into the quarter of the year.

³ <http://www.fao.org/3/bt979e/bt979e.pdf>

⁴ <http://www.marineregions.org/eez.php>

4.4 Fishing gear

The International Standard Statistical Classification of Fishing Gear (ISSCFG) is the reference standard. The codes should be chosen from corresponding to the standard abbreviation of gear category⁵.

The ISSCFG presents codes of major categories and sub-categories of gear. For this, CWP members or other producers of statistics often use their list of additional codes according to their context. It is recommended to have a mapping for their groupings with the ISSCFG categories.

4.5 Fishing mode

This statistical concept is reported in conjunction with the fishing gear to designate the fishing practice. It was suggested by all the Tuna RFMOs and the proposed codes are:

Code	Description
F	Free school
A	Natural-associated or object-associated fishing

4.6 Aquatic species

The classification recommended for primary use is the ASFIS List of Species for Fishery Statistics Purposes which is maintained by FAO⁶. Accordingly, the mapping of other coding systems, used for various purposes, to the ASFIS system is essential, to the extent possible.

The code is selected from the codelist “3A_CODE”, a unique identifier made of three letters and widely used for the exchange of fisheries statistics. The 3-alpha code corresponds to a scientific name, author(s), species, genus, family or higher taxonomic levels. It is also matched to a taxonomic code and ISSCAAP group⁷.

4.7 Catch Type

It corresponds to the CWP catch type concepts as described in the catch concept diagram of the CWP handbook⁸.

Codelist to be established for catch types.

4.8 Unit

From the FAO statistical standard series for Unit.

In the data structure Unit of measure are usually tonnes or number of individuals.

4.9 Observation status

It is defined by FAO statistical standard for Observation status flags (Annex 3). It is based on the SDMX Code list for Observation Status (CL_OBS_STATUS)⁹.

⁵ <http://www.fao.org/3/a-bt988e.pdf>

⁶ <http://www.fao.org/fishery/collection/asfis/en>

⁷ http://www.fao.org/fishery/static/ASFIS/ASFIS_Structure.pdf

⁸ Catch concept diagram <http://www.fao.org/3/bt981t/bt981t.pdf>

⁹ SDMX “Observation Status List” (2016) https://sdmx.org/wp-content/uploads/CL_OBS_STATUS_v2_1.docx

4.10 Coverage

It refers to the proportion that the amount of fish (in number or weight) or fishing effort that is monitored (sampled) makes out of the total (number or weight) of fish or fishing effort estimated in the stratum concerned¹⁰. The present coverage rate presented at the Annex 4 emanate from the IOTC guidelines for the reporting of fisheries statistics. It needs to be standardized with other CWP members' (essentially tuna-RFMOs) coding system.

The user should one of the codes in the Annex 3 and not input as decimal digits.

For instance: coverage rate could be “Less than 5% of the boats covered” or “Statistics raised; coverage unknown”.

4.11 Confidentiality

The information about the sensitivity and confidentiality status of the data. The classification system and codelist used corresponds to the SDMX Cross-Domain code list for Confidentiality Status (CONF_STATUS)¹¹. The codes and their descriptions (and annotations) are available in Annex 5.

For example: F: free for publication, N: Not for publication, restricted for internal use only.

5. Data exchange formats and mechanisms

Data format provides the content and the structure of the document sent over the data network. There are several formats and standards of dissemination and exchange which can be used to implement the global CWP standard for reference harmonization and related data structures. Data exchange options were a topic of discussion during the intersessional meeting. The TG recognized the importance of defining and recommending formats and standards for data exchange. Options put forward should cover the varying capabilities and requirements of CWP Parties, as mechanisms need to be aligned to enable data sharing agreement.

Alternatives should be evaluated on the basis of ease of implementation and operation and the following criteria:

- It should be wide spread throughout the CWP parties to minimise compatibility issues.
- It needs to be readable for human and machine, complexity should therefore be kept at an acceptable level.
- Harmonization of structures needs to be possible – Structure format must be standardized and the file format must support an open standard.

As for best practices to be pointed out, the writing convention or format could be recommended when exchanging data with specific coding system (e.g. FAO areas breakdown,.). In this case, the easy digitalization of the codes should be considered to facilitate data interoperability and exchange.

¹⁰ http://www.iotc.org/sites/default/files/Guidelines_Data_Reporting_IOTC1.pdf

¹¹ https://sdmx.org/?page_id=3215

5.1 Comma Separated Values CSV

CSV file format is widely used among CWP parties for dissemination of datasets and metadata. The readability of CSV files is acceptable and facilitate the interaction of human user. It could be a good candidate to exchange the global data structures, the reference data and metadata.

The main advantage of using CSV files lies in the fact that such format can be accessed through common spreadsheet software, making them easily managed manually and a useful option to accommodate data providers without information systems that can generate the data files for transmission automatically.

As example, FAO made available data structures for data domains namely global [capture production](#), and global aquaculture production, in a packaged format comprising Data Structure Definitions and codelists in CSV files and related metadata in text file. There will be aligned with the adopted CWP standard for reference harmonization.

5.2 Statistical Data and Metadata eXchange SDMX/SDMX-ML

[SDMX](#) is an international initiative that aims at standardising and modernising the mechanisms and processes for the exchange of statistical data and metadata among international organizations and their member countries. The organizations involved in the SDMX initiative developed [guidelines](#) applicable to all statistical domains. Furthermore, the community made available [software tools](#) and a registry to host reusable SDMX artefacts [7].

SDMX is not just a technical standard but offers guidelines such as a [Checklist for Design Projects](#) and [Modelling Guidelines](#) which are relevant for establishing an SDMX project for a data domain. For a specific data domain (e.g. capture data for dissemination purpose), an SDMX project starts by creating a concept scheme that describes this domain and the data flows (e.g. Country sends dataset to an organization). The design and creation of SDMX artefacts and the management of such a project are detailed in this standard project [workflow](#). The structure of this checklist is based, to the largest extent possible, on the UNECE [Generic Statistical Business Process Model](#).

SDMX principles have been applied to fisheries statistics and in particular to create the global catch DSD in the context of a joint-project SEIF that stands for SDMX for Eurostat, ICES and FAO. The initiative aimed at the alignment and the exchange of codelists between the three organizations.

SDMX is being adopted as the data collection format for fisheries in Eurostat, in-line with policy for all statistical domains covered by the European Statistical System. FAO is making progress in the implementation of SDMX principles and acquisition of necessary tools.

Technically, SDMX standard offers an information model which describes statistical data sets and the structural metadata needed to exchange them in a standard fashion. The content of SDMX files have visible structure with explanations what is stored where in the file. The usual format in SDMX information model is XML (SDMX-ML) which makes it a good option for exchange of fisheries statistical data sets and accompanied metadata.

In the CWP context, it remains essential to evaluate the ability of SDMX data model to incorporate the proposed multilingual reference data and the global data structures that can be expanded with other codelists and enriched with hierarchical codelists.

This evaluation is taking place with members of TG using SDMX. As a result background and technical documentation will be provided to the TG on the SDMX implementation of CWP data structures and related metadata.

5.3 Fisheries Language for Universal eXchange FLUX

FLUX standard, developed and maintained by the Centre for Trade Facilitation and e-Business (UN/CEFACT), provides an harmonized message standard allowing Fishery Management Organizations to automatically access the electronic data needed for stock management, such as vessel and trip identification, fishing operation (daily catch or haul-by-haul), fishing data (fishing area, species, date and time, and gear used), landing and sales information.

FLUX contains two distinct but related parts:

- The FLUX business layer
- The FLUX transportation layer

The core of the FLUX business layer is the detailed and standardised description of each and any data element needed. For the FLUX business layer, standardisation of the data elements and formats is based upon the UN/CEFACT approach of Business Requirements Specification (BRS).

[UN/CEFCAT BRS](#) have been defined and endorsed for the following FLUX domains:

- **Vessel Domain:** aims to standardize the exchange of fishing fleet data, and more specifically the information directly related to fishing vessels and vessels supporting fishing operations.
- **Fishing Activities Domain:** is related to data exchanges in the context of fishing activities performed by vessels during a fishing voyage. Fishing activities include all activities of vessels, related to a fishing trip. The domain contains reports related to the fishing trip: departure, arrival, entry and exit from zones, fishing operation, etc.
- **Vessel positions domain:** provides a standard for the communication of vessel position information (e.g. VMS or AIS) between monitoring centers.
- **Fishing licenses, authorizations and permits:** to standardize the exchange of data between stakeholders in the context of request for fishing license, authorization or permit.
- **Aggregated Catch Data (ACDR):** provides standard to exchange aggregated catch data between stakeholders.
- **Master Data Management (MDM):** encompasses exchanges from a Master Data Register to any requester of Fisheries information registered in it.

The focus of the TG should be directed to both [Fishing Activities and MDM](#) domains that are particularly relevant to the present proposals of global data structures covering global capture, nominal catch, catch and effort and logbook.

Technically speaking, FLUX is a language and not a system. It is a messenger that offers a protocol to create a secure and configurable network between different parties IT systems. UN/CEFACT provides a standardized schema for business process “[XML schemas](#)” and a standardized content called “Core Components”. The components are harmonized and regularly published in UN/CEFACT [Core Component Library](#).

FLUX offers several advantages, including free, open and global standard to automate the collection and dissemination of the fishery catch data. It provides a common approach towards electronic logbooks for

fishing vessels, interoperability between IT systems, and relatively easy exchange of data between parties. FLUX is strongly tied to XML as a data format.

UNECE established a [Team of Specialists](#) on Sustainable Fisheries to promote, facilitate and support the implementation of sustainable fisheries standards on a global scale and particularly the UN/FLUX. The project started as a small group initiative of EU member states and later developed into a UN/CEFACT project which engaged experts from all regions of the world, and made it a global standard.

Notwithstanding these advantages, implementation of FLUX are to be further explored for the purpose of interoperability of the CWP global data structures. Considering the growing importance of UN/FLUX in handling fisheries data, it is strategically important that the CWP standard for reference harmonization and embedded CWP standards and metadata are communicated to the UN/FLUX Team of Specialists so that this output be up-taken in mainstream considerations by UN/FLUX for fisheries data exchange.

6. Registry and Catalogue

Upon its endorsement by CWP, the global CWP standard for reference harmonization and global data structures will be published through the CWP website, under a dedicated section. Two alternatives of CWP registry were presented at the intersessional meeting and FAO was given guidance to work towards a centralized dissemination repository. During the technical workshop on harmonization of tuna fisheries statistics, FAO presented a proof of concept of a collaborative [CWP catalogue](#)¹² that would disseminate various CWP global data structures, CWP classifications, and the specific reference data made available by CWP parties. The CWP registry would be the index of data structures and reference data and mappings.

The proof of concept of the CWP catalogue is based on CKAN, an open source management system, which is a user-friendly discovery hub to enable easily pull and push of reference data and metadata. The catalogue will host:

- codelists of the CWP international standard classifications,
- codelists used by the CWP parties
- mappings of the Parties' codelists.

The contents will be harvested by CWP Parties and national authorities to facilitate data exchange and usage.

6.1 Metadata

The metadata kept in the catalogue should be periodically checked for validity and links to the resources are still valid and responding. If metadata are maintained in the catalogue for resources that no longer exist, a mechanism should be provided to point to updated versions.

The following types of metadata are particularly important for discoverability and reuse:

- a descriptive title and abstract;

¹² The CWP Catalogue is under testing and not open to public. Access requires authorization request.
https://bluebridge.d4science.org/web/cwp_secretariat/home?p_p_state=maximized&p_p_mode=view&saveLastPath=false&_58_struts_action=%2Flogin%2Flogin&p_p_id=58&p_p_lifecycle=0&_58_redirect=%2Fgroup%2Fgroup_secretariat%2Fgroup_secretariat

- identity and contact information for the individuals responsible for the creation of the resource;
- identity and contact information for the individuals responsible for the management of the resource;
- geographic location or boundaries;
- temporal coverage;
- keywords describing the resource and the scientific or practical domain to which it applies;
- information on conditions and restrictions on use;
- web links to the resource and to further information about the resource.

Formal metadata standards for comprehensive data documentation include, among others, ISO 19115-1 (Standards ISO 2014), Dublin Core (Standards ISO-2 2009), Darwin Core and Directory Interchange Format (DIF). Each metadata standard contains a set of suggested elements, or fields, which should be populated to cover three categories of metadata, including Descriptive, Structural, and Administrative metadata. The metadata should be populated according to the standard used so that file metadata can be read and utilized appropriately.

6.2 Naming conventions

Naming conventions are rules which enable the titling of electronic folders, documents and records in a consistent and logical way. This ensures that the correct data and related codes can be located, identified and retrieved from a filing system in a timely fashion, and that they are stored in an appropriate secure location. The principles of naming conventions can equally be applied to statistical concepts when using the CWP standards for the reference harmonization. Naming concepts and codes in a consistent and logical way to understand the definition at a glance, and by doing so will facilitate the retrieval of data. Through consistency and the application of logical conventions, there is a benefit to document, discover and use the global data structures.

Annex 1: Codelist of M49 country or area, active as of March 2019 (M49_CODE)

A NOTE OF CAUTION: The designations employed and the presentation of material of this list do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

CODE	M49 DESCRIPTOR
004	Afghanistan
248	Åland Islands
008	Albania
012	Algeria
016	American Samoa
020	Andorra
024	Angola
660	Anguilla
010	Antarctica
028	Antigua and Barbuda
032	Argentina
051	Armenia
533	Aruba
036	Australia
040	Austria
031	Azerbaijan
044	Bahamas
048	Bahrain
050	Bangladesh
052	Barbados
112	Belarus
056	Belgium
084	Belize
204	Benin
060	Bermuda
064	Bhutan
068	Bolivia (Plurinational State of)
535	Bonaire, Sint Eustatius and Saba
070	Bosnia and Herzegovina
072	Botswana
074	Bouvet Island
076	Brazil
086	British Indian Ocean Territory
092	British Virgin Islands
096	Brunei Darussalam
100	Bulgaria
854	Burkina Faso
108	Burundi
132	Cabo Verde
116	Cambodia
120	Cameroon

CODE	M49 DESCRIPTOR
124	Canada
136	Cayman Islands
140	Central African Republic
148	Chad
830	Channel Islands
152	Chile
156	China
344	China, Hong Kong SAR ¹³ ;
446	China, Macao SAR ¹⁴ ;
162	Christmas Island
166	Cocos (Keeling) Islands
170	Colombia
174	Comoros
178	Congo
184	Cook Islands
188	Costa Rica
384	Côte d'Ivoire
191	Croatia
192	Cuba
531	Curaçao
196	Cyprus
203	Czechia
408	Democratic People's Republic of Korea
180	Democratic Republic of the Congo
208	Denmark
262	Djibouti
212	Dominica
214	Dominican Republic
218	Ecuador
818	Egypt
222	El Salvador
226	Equatorial Guinea
232	Eritrea
233	Estonia
748	Eswatini ¹⁵
231	Ethiopia
238	Falkland Islands (Malvinas)
234	Faroe Islands
242	Fiji
246	Finland
250	France
254	French Guiana
258	French Polynesia
260	French Southern Territories

¹³ China, Hong Kong Special Administrative Region

¹⁴ China, Macao Special Administrative Region

¹⁵ The name of the Kingdom of Swaziland has changed into the Kingdom of Eswatini (long name) and Eswatini (short name) as of 19 April 2018 according to the “Legal No. 80” of 2018 titled “Declaration of Change of Swaziland Name Notice 2018”.

CODE	M49 DESCRIPTOR
266	Gabon
270	Gambia
268	Georgia
276	Germany
288	Ghana
292	Gibraltar
300	Greece
304	Greenland
308	Grenada
312	Guadeloupe
316	Guam
320	Guatemala
831	Guernsey
324	Guinea
624	Guinea-Bissau
328	Guyana
332	Haiti
334	Heard Island and McDonald Islands;
336	Holy See
340	Honduras
348	Hungary
352	Iceland
356	India
360	Indonesia
364	Iran (Islamic Republic of)
368	Iraq
372	Ireland
833	Isle of Man
376	Israel
380	Italy
388	Jamaica
392	Japan
832	Jersey
400	Jordan
398	Kazakhstan
404	Kenya
296	Kiribati
414	Kuwait
417	Kyrgyzstan
418	Lao People's Democratic Republic
428	Latvia
422	Lebanon
426	Lesotho
430	Liberia
434	Libya
438	Liechtenstein
440	Lithuania
442	Luxembourg

CODE	M49 DESCRIPTOR
450	Madagascar
454	Malawi
458	Malaysia
462	Maldives
466	Mali
470	Malta
584	Marshall Islands
474	Martinique
478	Mauritania
480	Mauritius
175	Mayotte
484	Mexico
583	Micronesia (Federated States of)
492	Monaco
496	Mongolia
499	Montenegro
500	Montserrat
504	Morocco
508	Mozambique
104	Myanmar
516	Namibia
520	Nauru
524	Nepal
528	Netherlands
540	New Caledonia
554	New Zealand
558	Nicaragua
562	Niger
566	Nigeria
570	Niue
574	Norfolk Island
580	Northern Mariana Islands
578	Norway
512	Oman
586	Pakistan
585	Palau
591	Panama
598	Papua New Guinea
600	Paraguay
604	Peru
608	Philippines
612	Pitcairn
616	Poland
620	Portugal
630	Puerto Rico
634	Qatar
410	Republic of Korea
498	Republic of Moldova

CODE	M49 DESCRIPTOR
638	Réunion
642	Romania
643	Russian Federation ¹⁶
646	Rwanda
652	Saint Barthélemy
654	Saint Helena ¹⁷
659	Saint Kitts and Nevis
662	Saint Lucia
663	Saint Martin (French Part)
666	Saint Pierre and Miquelon
670	Saint Vincent and the Grenadines
882	Samoa
674	San Marino
678	Sao Tome and Principe
680	Sark
682	Saudi Arabia
686	Senegal
688	Serbia
690	Seychelles
694	Sierra Leone
702	Singapore
534	Sint Maarten (Dutch part)
703	Slovakia
705	Slovenia
090	Solomon Islands
706	Somalia
710	South Africa
239	South Georgia and the South Sandwich Islands
728	South Sudan
724	Spain
144	Sri Lanka
729	Sudan
740	Suriname
744	Svalbard and Jan Mayen Islands
752	Sweden
756	Switzerland
760	Syrian Arab Republic
762	Tajikistan
764	Thailand
807	North Macedonia
626	Timor-Leste
768	Togo
772	Tokelau
776	Tonga

¹⁶ According to the resolution 73/263 adopted by the UN General Assembly, if data submitted by the Russian Federation include Crimea, the following footnote is suggested: *Information provided by the Russian Federation. Includes statistical data for the Autonomous Republic of Crimea and the city of Sevastopol, Ukraine, temporarily occupied by the Russian Federation.*

¹⁷ It includes the three geographical entities: Ascension, Saint Helena and Tristan da Cunha.

CODE	M49 DESCRIPTOR
780	Trinidad and Tobago
788	Tunisia
792	Turkey
795	Turkmenistan
796	Turks and Caicos Islands
798	Tuvalu
800	Uganda
804	Ukraine ¹⁸
784	United Arab Emirates
826	United Kingdom of Great Britain and Northern Ireland
834	United Republic of Tanzania
581	United States Minor Outlying Islands
840	United States of America
850	United States Virgin Islands
858	Uruguay
860	Uzbekistan
548	Vanuatu
862	Venezuela (Bolivarian Republic of)
704	Viet Nam
876	Wallis and Futuna Islands
732	Western Sahara
887	Yemen
894	Zambia
716	Zimbabwe
896	Areas not elsewhere specified
899	Areas not elsewhere specified and unknown
158	Taiwan, Province of China
412	Kosovo
836	United Republic of Tanzania, Zanzibar
275	Palestine

¹⁸ When submitting/publishing data, a note to be provided if Ukraine data exclude Crimea area as follow: *exclusion of data for the Autonomous Republic of Crimea and the city of Sevastopol*

Annex 2: Codelist of RFB area of competence (RFB_AREA)

Code	Description (Full name)
ACAP	Agreement on the Conservation of Albatrosses and Petrels
ACFR	ACFR area of competence
APFIC	Asia-Pacific Fishery Commission
BOBP-IGO	BOBP-IGO area of competence
CACFISH	CACFish area of competence
CARPAS	CARPAS area of competence
CBLT	CBLT area of competence
CCAMLR	CCAMLR area of competence
CCBSP	CCBSP area of competence
CCSBT	CCSBT area of competence
CECAF	Fishery Committee for the Eastern Central Atlantic
CIFA	CIFA area of competence
CIFAA	CIFAA area of competence
COMHAFAT-ATLAFCO	COMHAFAT/ATLAFCO area of competence
COPPESAALC	COPPESAALC area of competence
COREP	COREP area of competence
CPPS	CPPS area of competence
CRFM	CRFM area of competence
CTMFM	CTMFM area of competence
EIFAAC	EIFAAC area of competence
FCWC	FCWC area of competence
FFA	FFA area of competence
GFCM	GFCM area of competence
IATTC	IATTC area of competence
IBSFC	IBSFC area of competence
ICCAT	ICCAT area of competence
ICES	ICES area of competence
ICSEAF	ICSEAF area of competence
IOTC	IOTC area of competence
IPHC	IPHC area of competence
IWC	IWC area of competence
JOINTFISH	JointFish area of competence
LTA	LTA area of competence
LVFO	LVFO area of competence
MHLC	MHLC area of competence
MRC	MRC area of competence
NACA	NACA area of competence
NAFO	NAFO area of competence

NAMMCO	NAMMCO area of competence
NASCO	NASCO area of competence
NEAFC	NEAFC Convention Area
NPAFC	NPAFC area of competence
NPFC	NPFC area of competence
OAPO	OAPO area of competence
OLDEPESCA	OLDEPESCA area of competence
OSPESCA	OSPESCA area of competence
PERSGA	PERSGA area of competence
PICES	PICES area of competence
PSC	PSC area of competence
RAA	RAA area of competence
RCF	RCF area of competence
RECOFI	RECOFI area of competence
SEAFDEC	SEAFDEC area of competence
SEAFO	SEAFO area of competence
SIOFA	SIOFA area of competence
SPC	SPC area of competence
SPRFMO	SPRFMO area of competence
SRCF	SRCF area of competence
SRFC	SRFC area of competence
SWIOFC	Western Central Atlantic Fishery Commission
WCPFC	WCPFC area of competence
WECAFC	Western Central Atlantic Fishery Commission
WIOTO	WIOTO area of competence

Annex 3 Codelist of Observation status flags for dissemination (FAO_FLAG_STATUS)

http://intranet.fao.org/fileadmin/user_upload/scp/Standards_for_quality_compliance/SSS1_Flags.pdf

https://sdmx.org/wp-content/uploads/CL_OBS_STATUS_implementation_20-10-2014.pdf

CODE		Descriptions
A	Normal value	To be used as default value if no value is provided or when no special coded qualification is assumed. Usually, it can be assumed that the source agency assigns sufficient confidence to the provided observation and/or the value is not expected to be dramatically revised.
B	Time series break	Observations are characterised as such when different content exists or a different methodology has been applied to this observation as compared with the preceding one (the one given for the previous period).
D	Definition differs	Used to indicate slight deviations from the established methodology (footnote-type information); these divergences do not imply a break in time series.
E	Estimated value	Observation obtained through an estimation methodology (e.g. to produce back-casts) or based on the use of a limited amount of data or ad hoc sampling and through additional calculations (e.g. to produce a value at an early stage of the production stage while not all data are available). It may also be used in case of experimental data (e.g. in the context of a pilot ahead of a full scale production process) or in case of data of (anticipated/assessed) low quality. If needed, additional information can be provided through free text using the COMMENT_OBS attribute at the observation level or at a higher level.
F	Forecast value	Value deemed to assess the magnitude which a quantity will assume at some future point of time (as distinct from "estimated value" which attempts to assess the magnitude of an already existent quantity).
G	Experimental value	Data collected on the basis of definitions or (alternative) collection methods under development. Data not of guaranteed quality as normally expected from provider.
I	Imputed value (CCSA definition)	Observation imputed by international organisations to replace or fill gaps in national data series, in line with the recommendations of the United Nations Committee for the Coordination of Statistical Activities (CCSA).
K	Data included in another category	This code is used when data for a given category are missing and are included in another category, sub-total or total. Generally where code "K" is used there should be a corresponding code "W - Includes data from another category" assigned to the over-covered category. Implementers and data reporters should use the COMMENT_OBS observation-level attribute to specify under which category the data are included.

W	Includes data from another category	This code is used when data include another category, or go beyond the scope of the data collection and are therefore over-covered. Generally, where code "W" is used there should be a corresponding code "K - Data included in another category" assigned to the category which is under-covered. Implementers and data reporters should use the COMMENT_OBS observation-level attribute to specify which additional data are included.
O	Missing value	This code is to be used when no breakdown is made between the reasons why data are missing. Data can be missing due to many reasons: data cannot exist, data exist but are not collected (e.g. because they are below a certain threshold or subject to a derogation clause), data are unreliable, etc.
M	Missing value; data cannot exist	Used to denote empty cells resulting from the impossibility to collect a statistical value (e.g. a particular education level or type of institution may be not applicable to a given country's education system). ¹⁹
P	Provisional value	An observation is characterised as "provisional" when the source agency – while it bases its calculations on its standard production methodology – considers that the data, almost certainly, are expected to be revised.
S	Strike and other special events	Special circumstances (e.g. strike) affecting the observation or causing a missing value.
L	Missing value; data exist but were not collected	Used, for example, when some data are not reported/disseminated because they are below a certain threshold.
H	Missing value; holiday or weekend	Used in some daily data flows.
Q	Missing value; suppressed	Used, for example, when data are suppressed due to statistical confidentiality considerations.
J	Derogation	Clause in an agreement (e.g. legal act, gentlemen's agreement) stating that some provisions in the agreement are not to be implemented by designated parties; these derogations may affect the observation or cause a missing value. In general, derogations are limited in time.
N	Not significant	Used to indicate a value which is not a "real" zero (e.g. a result of 0.0004 rounded to zero).

¹⁹ This concept is sometimes referred to as "not applicable". However, it is important to note that "not applicable" as meaning "data cannot exist" is different from the concept of "not applicable" (represented with code "_Z") as described in the list of SDMX generic codes presented in the "Guidelines for the Creation and Management of SDMX Cross-Domain Code Lists". Code "M – Missing value; data cannot exist" as mentioned here is used to characterise the impossibility for a statistical value to exist. As such it is a quality indicator used as an attribute to a statistical value. _Z is a residual category in a code list to which statistical values are attached.

U	Low reliability	This indicates existing observations, but for which the user should also be aware of the low quality assigned.
V	Unvalidated value	Observation as received from the respondent without further evaluation of data quality.

Annex 4: Codelist of Coverage rate proposed by IOTC (COVERAGE_STATUS)

This proposal needs to be standardized to accommodate CWP members' requirements.

	Code	Description
1.	UP	Statistics partially raised; coverage unknown
2.	UR	Statistics raised; coverage unknown
3.	US	Statistics not raised; coverage unknown
4.	UT	Total enumeration
5.	UU	Not sampled
6.	B0	Less than 5% of the boats covered
7.	B1	Between 5%-9% of the boats covered
8.	B3	Between 10%-29% of the boats covered
9.	B7	Between 30%-69% of the boats covered
10.	B9	70% or more of the boats covered
11.	T0	Less than 5% of the trips covered
12.	T1	Between 5%-9% of the trips covered
13.	T3	Between 10%-29% of the trips covered
14.	T7	Between 30%-69% of the trips covered
15.	T9	70% or more of the trips covered
16.	N0	Less than 5% of the fish sampled (in number)
17.	N1	Between 5%-9% of the fish sampled (in number)
18.	N3	Between 10%-29% of the fish sampled (in number)
19.	N7	Between 30%-69% of the fish sampled (in number)
20.	N9	70% or more of the fish sampled (in number)
21.	W0	Less than 5% of the fish sampled (in weight)
22.	W1	Between 5%-9% of the fish sampled (in weight)
23.	W3	Between 10%-29% of the fish sampled (in weight)
24.	W7	Between 30%-69% of the fish sampled (in weight)
25.	W9	70% or more of the fish sampled (in weight)

Annex 5: Codelist for Confidentiality Status (CONF_STATUS)

Code	Recommended code description	Description
F	Free (free for publication)	<p>Used for observations without any special sensitivity considerations and which can thus be freely shared.</p> <p>Usually, source organizations provide information and guidance on general requirements for re-dissemination (like mentioning the source) either on their websites or in their paper publications. In some institutional environments the term "unclassified" is used in a sense that still denotes implied restrictions in the circulation of information. If this is the case, the organizations concerned may probably consider that "free" (value F) is not the appropriate tag for this kind of "unclassified" category and that "Not for publication, restricted for internal use only" (value N) may be more appropriate.</p>
N	Not for publication, restricted for internal use only	<p>Used to denote observations that are restricted for internal use only within organizations.</p> <p>This code may be accompanied with an additional observation-level attribute: CONF_REDIST which defines the secondary recipient(s) to whom the sender allows the primary recipient to forward confidential data.</p>
C	Confidential statistical information	<p>Confidential statistical information (primary confidentiality) due to identifiable respondents. Measures also should be taken to prevent not only direct access, but also indirect deduction or calculation by other users and parties, probably by considering and treating additional observations as "confidential" (secondary confidentiality management).</p>
D	Secondary confidentiality set by the sender, not for publication	<p>Used by the sender of the data to flag (beyond the confidential statistical information) additional observations in the dataset so that the receiver knows that he/she should suppress these observations in subsequent stages of processing (especially dissemination) in order to prevent third parties to indirectly deduct the observations that are genuinely flagged with "C".</p>
S	Secondary confidentiality set and managed by the receiver, not for publication	<p>If senders do not manage the secondary confidentiality in their data and/or there are also other countries' data involved (with the intention to eventually compile a regional-wide aggregate that is going to be published), the value "S" is used by the receiver to flag additional suppressed observations (within sender's data and/or within the datasets of other senders) in subsequent stages of processing (especially, dissemination) in order to prevent third parties to indirectly deduct the observations that were genuinely flagged with "C" by the sender.</p>

A	Primary confidentiality due to small counts	A cell is flagged as confidential if less than m units ("too few units") contribute to the total of that cell. The limits of what constitutes "small counts" can vary across statistical domains, countries, etc.
O	Primary confidentiality due to dominance by one unit	Used when one unit accounts for more than x % of the total of a cell. The value of x can vary across statistical domains or countries, be influenced by legislation, etc.
T	Primary confidentiality due to dominance by two units	Used when two units account for more than x % of the total of a cell. The value of x can vary across statistical domains or countries, be influenced by legislation, etc.
G	Primary confidentiality due to dominance by one or two units	Used when one or two units account(s) for more than x % of the total of a cell. The value of x can vary across statistical domains or countries, be influenced by legislation, etc.
M	Primary confidentiality due to data declared confidential based on other measures of concentration	Cells declared confidential using mathematical definitions of sensitive cells, e.g. p-percent, p/q or (n,k) rules.
E	Not for publication, restricted for internal use only (equivalent to the code N) until the embargo time elapses; Free for publication (equivalent to the code F) after the embargo time elapses.	Used for embargoed data. The embargo time has to be specified in the EMBARGO_TIME attribute. This code may be accompanied with an additional observation-level attribute: CONF_REDIST which defines the secondary recipient(s) to whom the sender allows the primary recipient to forward confidential data.