



Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017

on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008 (recast)

Commission Delegated Decision (EU) 2021/1167 of 27 April 2021
establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors from 2022

Commission Implementing Decision (EU) 2021/1168 of 27 April 2021
establishing the list of mandatory research surveys at sea and thresholds as part of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors from 2022

Commission Implementing Decision (EU) 2016/1701 of 19 August 2016
laying down rules on the format for the submission of work plans and annual reports for data collection in the fisheries and aquaculture sectors

ITALY Work Plan for data collection in the fisheries and aquaculture sectors

2022 – 2024

Version 5

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SECTION 1: GENERAL INFORMATION

Data collection framework at national level

The National Fisheries Data Collection Program provides for the collection and management of biological, environmental, technical and socio-economic data necessary for fisheries management purposes, in compliance with EU Regulation no. 1004/2017 establishing a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice on the common fisheries policy. As well as with the subsequent Delegated Decision (EU) no. 1167/2021 which established a multiannual Union program for the collection, management and use of data in the fisheries and aquaculture sector starting from 1 January 2022 and with the subsequent Implementing Decision (EU) no. 1168/2021 of the Commission which establishes the list of mandatory campaigns at sea and the thresholds below which Member States are not required to collect data on their fishing and aquaculture activities or to carry out research campaigns at sea. The acquisition and management of such data benefit from funding from the European Fund for Maritime Affairs and Fisheries and Aquaculture (FEAMPA), established by Regulation (EU) no. 1139/2021, in accordance with the Operational Program for the period 2021-2027.

The National Program includes the procedures and methods to be used for the collection and analysis of data as well as for the estimation of their accuracy and precision. Data collection and monitoring protocols and methods comply with the quality standards established by international scientific bodies and regional fisheries management organizations.

Italy coordinates its national plan with that of the other Member States within the following Regional Coordination Groups: RCG MED & BS (coordination group for the Mediterranean and Black Sea), RCG LP (coordination group for large pelagics), RCG LDF (coordination group for fisheries in areas other than the Mediterranean). The role of the RCG, in addition to facilitating this coordination, is to develop and implement the procedures, methods, quality control for the collection and processing of data, to further improve the reliability of scientific opinions. In addition, regional coordination groups can develop draft regional work plans, compatible with the multi-year program of the Union (Article 9 of EU Reg. 1004/2017).

The administrative procedure to identify the institutes contributing to the data collection activities is still ongoing, the full names, acronyms and contacts of the entities will be communicated as soon as the public procurement procedure is concluded.

Currently the national data collection website is

<https://fishdatanet.cnr.it/web/>

Text Box 1a: Test studies description

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Text Box 1b: Other data collection activities

SECTION 2: BIOLOGICAL DATA

Text Box 2.3: Data collection for diadromous species in freshwater

General comment: This Textbox fulfils Article 5(2)(a), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II, point 2.1(b) and point 2.3 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used to collect data from freshwater commercial fisheries for salmon, sea trout and eel, and from research surveys on salmon and sea trout in freshwater, and on eel in any relevant habitat including coastal waters.

Data collection for Eel in Italy will deal with *eel commercial inland fisheries (freshwaters and transitional waters)*, marine eel fisheries being definitively closed by the Decree of the Ministry of Agriculture and Forestry Police (MIPAAF) n. 403 of July 25th, 2019, and with *eel research surveys in relevant habitats*.

Data Collection for *eel commercial fisheries* shall be carried out in the 9 Eel Management Units, and will be structured as follows (see Table 2.2. Biological variables) :

- reporting by Regional Administrations of official catch data, based on requirements of Regional EMPs under Council Regulation (EC) No 1100/2007 and with a standardized protocol (census of all fishers, interviews and questionnaires submitted to fishers in all fishing sites)
- data quality check based on direct surveys on samples of fishers in each EMU
- computation for each EMU of catches for single eel life stages relative to habitat types (habitat types: RIV rivers, LAK lakes, LGN lagoons, MLG managed lagoons)
- Samplings from commercial catches for biological variables, in one site per EMU identified with EMU Administrations based on the most significant in terms of volume of catch targeting yellow eel and silver eel, 15 individuals per stage per EMU, for a total of 270 individuals.
- In 2022-2024 the following biological variables will be collected: developmental stage (every year) and length and weight (every year) animals, sex and age every three years, starting in year 2022.

Data Collection from *eel research surveys in relevant habitats* in order to collect data on recruitment, standing stock and escapement will also be carried out in the 9 EMUs. The selection of the relevant site for the monitoring of all the three eel life stages will be agreed with Regional Administrations involved in Eel Management Plans under Council Regulation (EC) No 1100/2007, possibly coincident with the site for biological sampling of catches in order to complete information for specific eel local stocks in selected sites. The implementation of fishery independent monitoring for each eel life stage, in one water body in each EMU, will foresee this minimum scheme each year (see Table 2.3. Diadromous):

Recruitment (glass eel stage)

In the selected water body (habitat type: lagoon or river, depending on the EMU) for 7 days/month (new moon) installation of 1 fyke-net along the tidal channel (lagoon) or river bank for during the migration period (4 months: November-February), and the registration of presences (N) for each night. CPUE (number of recruits/gear/week) will be calculated for the whole 4-months sampling.

Standing stock (yellow eel stage)

In the selected water body (habitat type: lagoon or river, depending on the EMU) installation of 1 enclosure net system (fyke nets + a boundary net arranged to enclose an area of 1 ha) (if the body water selected is a lagoon) or a fyke-net chain (row of 10 nets along the river bank, if the water body selected is a river) for 7 days/month during trophic movements period (April-July), and the daily registration of catches, (N or Weight, depending on the amount of capture) each day. CPUE (number of individuals/gear/week) will be calculated for the whole 4-months sampling.

Escapement (silver eel stage):

In each EMU, in the selected water body (habitat type: lagoon or river, depending on the EMU) installation of a set of fyke-nets (in front of the tidal channel if the body water selected is a lagoon, or along the river bank, if the water body selected is a river) for 7 days/month during downstream migration (October-January), and the daily registration of catches, (N or Weight, depending on the amount of capture) each day. CPUE (number of individuals/gear/week) will be calculated for the whole 4-months sampling.

Definitive implementation of the monitoring scheme and of collected variables and data processing will take place in the first months of 2022, within a framework of coordination with Regional Administrations occurring under the Eel Management Plans under Council Regulation (EC) No 1100/2007. Final methodological challenges will also be finally worked out based on results of the Pilot phase for WP2 Task 2.3b (I: 2017-2019, II: 2020-2021).

Text Box 2.4: Recreational fisheries

General comment: This text box fulfils Article 5(2)(a), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II, point 2.2 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used for the data collected on marine and freshwater recreational catches.

Description of the sampling scheme/survey according to Table 2.4.

The activity of the recreational fisheries surveys will be carried out with two different subprojects:

- This project will consider the species identified in the gfcms Report of the first meeting of the WG on recr.fish. (WGRF) 2021 appendix 3 and 5. The exact list of species is not yet consolidated, and will be definitively decided during 2022, after the end of the pilot studies currently still ongoing and the following consultations.

The first project foresees:

- A telephone survey will be carried out to update the universe of fishermen and collect general information. This universe will be the base to extract a panel of fishermen for the following phase of logbook survey. The telephone survey will be carried every three years.
- A logbook survey will be carried out every year on the identified panel of anglers. The variables requested concern catches per species (retained or released) area and type of fishing. The result will be used for the estimate of total catch per species.

- The second project will consider the large pelagic species, as according to the ICCAT list of elasmobranchs and highly migratory species and it will foresee:

- An annual census of the boats potentially practising the large pelagics recreational fishing. This census will be considered as the estimate of the universe of anglers, since this type of fishing can only be practised by boat.

- During this activity a panel of anglers will be statistically identified. This panel will be asked for a logbook survey. The variables requested concern catches per species (retained or released) area and type of fishing. This information will be used for the estimate of total catch per species. The official register of catches for bluefin tuna and swordfish will also be considered.

Regarding *Anguilla Anguilla* data collection will target catch data for the two eel life stages targeted by recreational fisheries in transitional and freshwaters in the 9 EMUs, recreational eel fisheries being closed in the rest of the National water bodies (by Regional decrees following the implementation of the Italian Eel Management Plan under Regulation 1100/2007) and marine eel recreational fisheries being non-existent. Within each EMU, data collection is further stratified according to habitat type, taking into account 3 strata of eel habitat typologies identified in the 9 EMUs, where recreational fisheries occur: RIV (river), LAK (Lake), LGN (Lagoon). Data collection of eel recreational fisheries relies on information provided by EMUs Administrations and their internal system of licensing and catch recording (logbooks, on-line declarations, any other).

Data capture for eel recreational catches recording will be based on off-site interviews to a sample of fishermen by observers, extracted on a statistical basis for each habitat typology in each EMU. The methodology (questionnaires, interviews, catch declarations) is agreed in each EMU with the EMU Administration, depending on the system already in place at the local level, and further standardized for all EMU

Data capture foresees catch (yellow and silver eel separated), type of gear, number of gears used daily, and number of fishing days per year.

Text Box 2.5: Sampling plan description for biological data

General comment: This text box fulfils Article 5 (2)(a) and (b), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2, point 2.1(a) and 4.1 of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

In order to ensure congruency along the data series, Italy will report data by a combination of metiers and GSA (sampling frame identifier) as recommended by RCMMed&BS-LP 2016, and, as defined by EUMAP under Chapter II (data requirements), paragraph 2.1 a) requesting catch data at the aggregation level 6 (corresponding to mesh size). All the collection and analysis of data (for the metier selected by the ranking system) will be performed and reported at GSA level (<http://www.fao.org/gfcm/data/map-geographical-subareas/en/>), with the exception of the metier targeting large pelagic which will be analysed and reported at national level. Sampling will be performed, on the metier selected through the ranking system procedure, in order to evaluate length distribution of species in the catches, and the volume of discards. Discards evaluation will be carried out only for the selected metier as agreed both during the RCMMed&BS-LP 2016 (see Annex IX of the mentioned report), and during the RCGMed&BS, 2019.

Regional Coordination Group for the Mediterranean and Black Sea (see also RCMMed&BS-LP, 2016) agreed that stratification of stocks for data collection should follow the structure followed in the previous years (Group 1, 2 and 3 species, EU Decision 93/2010), which is also in line with the approach, and the spatial stratification, as identified in the adopted GFCM-Data Collection Reference Framework (DCRF manual v. 21.1 - GFCM, 2018).

Average landing data and share in EU landing have been obtained from the data sharing during the RCGMed&BS, 2021 meeting.

Length data should be collected and reported yearly for all the three identified group of species. Other biological parameters (i.e. sex, age, maturity, weight) shall be collected and reported yearly for Group 1

species (as in GFCM-DCRF Appendix A.1), whereas, for all Group 2 species sex, age, maturity and weight, should be reported every three years (as requested by GFCM-DCRF Appendix A.2).

The number of demersal and small pelagic individuals are decided by the MS based on previous sampling knowledge. Starting from 2023, the optimum number of individuals required for biological data sampling will be revised and calculated using the tool devised by the project STREAM and presented during the last Regional Coordination Group (RCGMed&BS, 2019).

Concerning large pelagic species, length data will be reported yearly. Sex, age, maturity and weight will be reported in accordance with the end-user needs and coordinated at regional level (Table 2.2). With regard to the number of individuals to be sampled for large pelagic (Table 2.2), the same number of individuals, as regionally agreed by each country for the previous triennial period, is to be retained.

Regarding sharks, it should be underlined that most of the proposed species reported both in Tables of the EUMAP (COM Delegated Decision, 2021/1167), and in the Appendix A.3 of the GFCM-DCRF (GFCM, 2018), are rare and with a sporadic and not confirmed presence in the Mediterranean area. For this reason, it has been decided that no planned minimum number and sampling strategy can be associated to the collection of “sharks” species. Following the above mentioned issues all the elasmobranch species (with the exceptions of the 3 species reported further down) have not been listed in the tables 2.1 of the working plan, because for those species it will not be possible to draw a sampling plan. However, all elasmobranchs species, whenever they occur during the biological sampling, will be sampled concurrently for length and then reported in the Annual Report. Biological information, such as sex, age, weight and maturity, will be also collected and reported when available, through the research surveys at sea.

As mentioned before, in the Italian WP, only for the four most abundant elasmobranchs species, *Raja clavata* (GSA 9, 11 and 16), *R. asterias* (GSA 9 and 11), *R. miraletus* (GSA 18) as commercial species, there will be a biological sampling programme associated (see 2.1 and 2.2).

Table 2.5

In order to identify the metiers to be sampled, the ranking system at GSA level, as described in the GFCM-DCRF (2016), has been applied. For sampling purpose, only the major metier at GSA level (Sampling frame identifier) selected by the ranking systems will be therefore considered. Official statistics (landings, effort and value data) have been used to apply the ranking system. Sampling strategies in each GSA will be a mix of concurrent sampling by scientific observer on shore and by scientific observer at sea (see annex 1.1) .

The target population for the reference year will be the mean number of fishing trips by metier of the last three years (2018-2020) for which data are available. Fishing trip will be considered equal to fishing day. The frame population is a subsample of the target population: it will be a selection of fishing trips, mainly on spatial (GSA) and time stratification basis (quarterly) with measurements of the composition of the catch in order to detect seasonal differences in the demographic structure and composition of the landings for different metier. The sampling will be accomplished according to the methods of a two-stage stratified random sampling: the sampling unit belonging to the metier (primary unit) will be the fishing trip (secondary unit). The number of fishing days to be sampled has been defined proportionally to the effort (number of days at sea for each metier) and the landings.

With regard discards sampling, Italy will follow the discard sampling program as recommended by the Regional Coordination Group (see Annex IX of the RCMMed&BS-LP 2016, and the updated table in the last RCGMed&BS, 2019).

Finally, concerning the establishment of a recovery plan on Mediterranean swordfish, the workplan already includes the collection of adequate scientific information for highly migratory pelagic species in the Mediterranean. The recovery plan on Mediterranean swordfish requests the collection of additional specific information related to fishing activities and specific data on the catches, in the smallest time-area possible. The

sampling schemes already planned will be adapted in order to reach the level of details requested by the recovery plan on Mediterranean swordfish.

A summary of the methodologies applied for the estimation of demography of landings, discards, the calculation of growth and reproduction parameters, and the related precision levels, it is provided under the following link <https://dcf-italia.cnr.it/rest/uploads/Linee%20guida%20Raccolta%20dati%20biologici>.

REGION: Other regions

The Italian Fleet Register includes 8 vessels with a license to operate outside the Mediterranean waters. The activity of these vessels depends on fisheries agreements in place and may vary every year.

Till now there has been no requirement for Italy to sample these two fisheries, as recommended in RCG LD reports. Available landing and effort data of these vessels operating both in the CECAF and IOTC areas will be sent to the RCM Long Distance Fishery. Up to now, no biological sampling has been implemented for those vessels, they only have a national obligation to fulfil logbooks. Italy will be considered further recommendations of the RCM long distance fisheries.

Text Box 2.6: Research surveys at sea

General comment: This text box fulfils Article 5 (1)(b), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU-MAP Implementing Decision or whether it is an additional survey.

(Use one text box per survey)

Name of the research survey

MEDITS

1. Objectives of the survey

The MEDITS programme aims to conduct co-ordinated bottom-trawl surveys Mediterranean. This bottom trawl survey derives from an EU project started in 1994 at European Mediterranean level (Bertrand et al., 2002), in which all the participants use the same gear, the same sampling protocol and the same methodology. The challenge of MEDITS survey is to provide data useful for describing and quantifying changes in the fish populations, through indices of demography, mortality, spatial occupation, biological traits, thus contributing to the routine stock assessments and the development of management advice tools. One survey should be carried out every year, during spring and beginning of summer.

For mandatory surveys: list the full list of target species/ecosystem components set by the coordinating group (as opposed to the target species provided in Table 1 of the EU MAP Implementing Decision) and the international, and additional national objectives.

For non-mandatory surveys: describe the purpose of the survey including sampling activities and target species/ecosystem components, the end user and how the data are used.

2. Description of the survey design and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey.

Overall, MEDITS data shall be processed and analysed in line with the data collected according to the common protocol (MEDITS-Handbook. Version n. 9, 2017), to produce information (i.e. population distribution, abundance, size composition etc.), on benthic and demersal species found in an area with a depth ranging from 0 to 800 m within the seas adjacent to Italy (in Fig. a the 7 GSA are reported). The working zone (on the continental shelves and along the upper slopes) has been adopted to cover at best the distribution areas of the main exploited or potentially exploitable species, considering the administrative and technical constraints of the project.

The stations will be distributed in each of the 7 GSA applying a random stratified sampling scheme using as strata the geographical combination of zones and depth. About 670 hauls should be carried out during each annual survey (Fig.a).

In order to improve the quality of the MEDITS data and the consistency of the information collected a routine (RoME, Bitetto et al., 2017) has been developed for common use, which rationale has been incorporated in the checks made at JRC level during the data upload and the assessment working groups (STECF-EWG). Regarding the data storage, the FishTrawl webapp (a software system for data input, analysis, import/export, storage, checks), designed for scientific trawl survey data as MEDITS was completed, tested and it is available for common use.

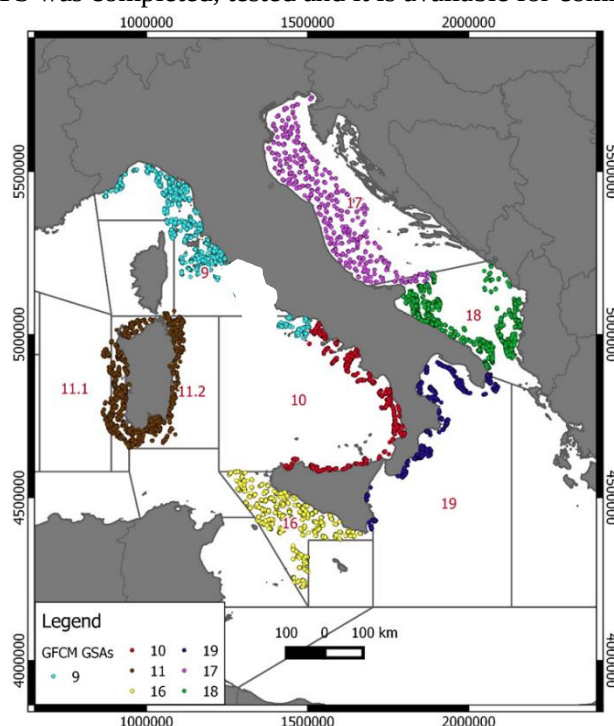


Figure a) MEDITS fishing hauls foreseen in the 7 Italian GSA.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

Since 2001, the European countries bordering the Mediterranean and Black Sea are obliged to carry out Medits survey yearly in the framework of the EU data collection regulation. Up to now 8 Mediterranean EU countries (Italy, France, Spain, Croatia, Greece, Malta, Slovenia, and Cyprus) and 2 Black Sea EU countries (Romania and Bulgaria) collaborated in the project and permanent links are maintained with relevant bodies (i.e. RCGMed&BS and GFCM). Targets number of hauls, by area and participating countries, are reported in the Annex III of the Medits Handbook (MEDITS-Handbook Version n. 9, 2017).

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.
Not relevant

For types of participation other than 'Financial', describe the type of participation, and/or the background of the type of participation in more detail.

Name of the research survey

MEDIAS

1. Objectives of the survey

The Pan Mediterranean Acoustic Survey (MEDIAS) has been carried out annually since 2009 in order to assess the abundance and spatial distribution of small pelagic species (anchovy - *Engraulis encrasicolus*, and sardine - *Sardina pilchardus*), in the Mediterranean Sea by means of acoustic methodology. Demographic structure and species composition of the pelagic populations has been derived also from pelagic trawls in order to evaluate the abundance and biomass per age, size and sex.

2. Description of the survey design and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey

This research will be based on common protocol (MEDIAS-Handbook, 2019) and will follow a multidisciplinary approach. Synoptically with the acoustic data acquisition, carried out using a multifrequency scientific echo sounder system properly calibrated each year, net samplings on small pelagic fish should be performed by means of a pelagic trawl.

The aim is to determine species and size composition of the pelagic biomass (fish sampling is required to collect representative samples of the population from a qualitative point of view and not a quantitative point of view, as is the case of demersal surveys). Length frequency distribution of all the caught fish species will be recorded. Age samples of *E. encrasicolus* and *S. pilchardus* will be collected and analysed. Analysis of acoustic data will be conducted by means of dedicated software for echograms scrutinization.

Further, for an ecosystem-based approach environmental monitoring will be performed, thus CTD oceanographic data (temperature, salinity, fluorescence and dissolved oxygen) will be recorded.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

The MEDIAS acoustic surveys, performed in spring-summer, should cover a series of areas in the Mediterranean EU MS (Spain, France, Croatia, Italy, Slovenia and Greece) with a standardised methodology. Italy will cover:

- a) Adriatic Sea (GSA 17 and 18; corresponding to FAO Sub-Divisions 37.2.1 and 37.2.2 – Fig. b)
- b) Tyrrhenian Sea (GSA 9 and 10; corresponding to FAO Sub-Division 37.1.3 – Fig. b)
- c) Sicilian Channel (GSA 16; corresponding to FAO Sub-Division 37.2.2 – Fig. b)

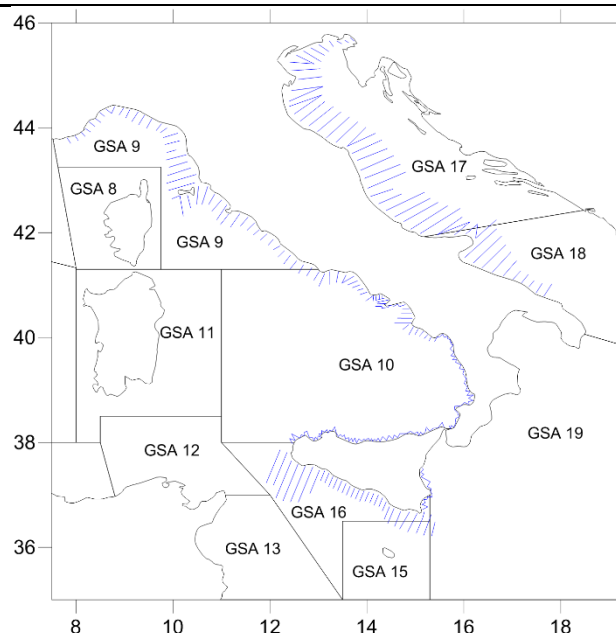


Figure b) MEDIAS Acoustic surveys design in the 5 Italian GSAs

Concerning the MEDIAS database, in 2016 the Steering Committee has revised the format of existing databases related to acoustic surveys per study area and MEDIAS partners (AcousMed project, Contract MARE/2009/09 SI2). The aim is the proposal of a common database that will serve the needs of acoustic surveys in order to fulfil DCF requirements and standardize the output of surveys estimations.

Concerning the availability of data, the reference period will be one year. For MEDIAS surveys, as agreed at regional level (RCMMed&BS Final Report, 2016), the results pertaining to the reference period (n) will be ready at the end of March of the year after (n+1). The geographical areas that will be covered by the MEDIAS surveys and the respective days at sea per participating countries are reported in Table 1 of the Medias manual (MEDIAS-Handbook, 2019).

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

Not relevant

Name of the research survey

SOLEMON

1. Objectives of the survey

Solea solea is an important resource in the GFCM area. About 22% of the GFCM landings of soles comes from the Adriatic Sea. In the GSA 17 soles are targeted by “rapido” trawl and set nets, that amount to around 500 boats, for a total of 1,600 fishermen and an annual value of landings of around 40 million Euros.

The main survey objectives are:

- a) Assessing abundance and distribution in GSA17 of sole and other important demersal resources by surveys with “rapido” gears suitable to seize flatfish and other benthic animals.
 - b) Pursuing the studies on the ecosystem impact of the “rapido” trawl fishery.
 - c) Finally, survey data will also contribute to the setting of the GES and targets for the Adriatic Sea in the framework of an ecosystem approach. Thus, matching to the requirement of the implementation of the MFSD (DIRECTIVE 2008/56/EC).
2. Description of the survey design and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey

The survey should cover sole presence within the GSA 17 that, according to the genetic information pertains as a single stock (Figure c).

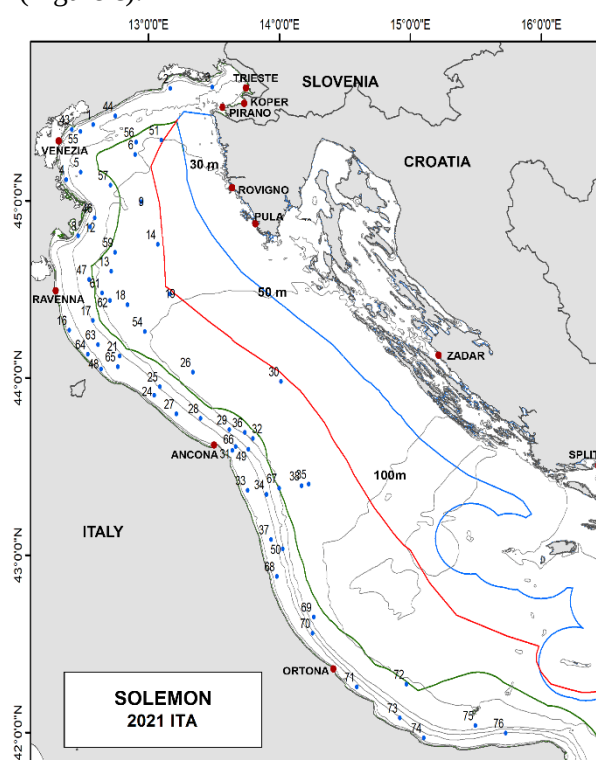


Figure c) The Italian SoleMon fishing hauls foreseen in the Adriatic Sea (GSA 17)

All this holds also for benthic fish and shellfish of commercial interest, including rays and other selachians, since EU greatly focuses on such vulnerable resources. Survey should be carried out based on the protocol used since 2005 (SoleMon, 2019; Survey – Handbook Version 2019) and utilising the same gear. The gear is a modified beam trawl named as “rapido” trawl and should be appositely planned to fish on different types of bottom. The research vessel should utilize two gears simultaneously in each haul.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

Data will be shared in WGs, both at EU and Mediterranean level, and with all Adriatic member States through common database AtrIS. Targets number of hauls, by area and participating countries, are reported in the Solemon Handbook (SoleMon, 2019).

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

Not relevant

Name of the research survey

DRES Chamelea (non-mandatory survey)

1. Objectives of the survey

Concerning hydraulic dredges for striped venus clam *Chamelea gallina* (GSA 17 and GSA 18) two management plans have been adopted in Italy through the Ministerial Decree n. 9913 of 17/06/2019 and the EC Regulation (EC) 2016/2376 (discard plan). Both plans highlight the need to conduct a standardized annual survey (scientific survey), aimed at assessing the state of the resource and the effectiveness of the technical measures adopted. Scientific surveys will be conducted to assess the spatial distribution of the species. Information from surveys combined with those from commercial data (landings) are necessary for stock assessment and to define the reference points of management plans. The main biometric measurements (length and weight) will be recorded for the mentioned species. Additionally, biological information (e.g. weight, age etc.) will be collected and reported every three years for the striped venus, which has a minimum conservation reference size (22 mm).

2. Description of the survey design and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey

The more recent surveys have been conducted following the standard protocol used at national scale. A specific survey manual has been prepared in 2018 and it is available on the Italian DCF website (DRES, 2018; Protocol for Dredgers Mollusc Surveys available at https://dcf-italia.cnr.it/rest/uploads/Protocollo%20DRES%202.2_PLNRDA). Commercial vessels will be used to conduct the surveys.

The commercial hydraulic dredge used to harvest *C. gallina*, and *E. minor*, are similar and will comprise a rectangular cage 3 m wide, weighing 0.6 t, mounted upon two sledge runners. The cage is connected to a hose, which serves to eject water under pressure from the nozzles at the mouth of the dredge and inside the dredge cage. Surveys for *C. gallina* will be carried out in the 13 marine compartments in the Adriatic Sea (GSA 17 and GSA18; see Fig. d). Each local compartment will be surveyed along regularly spaced transect perpendicular to the coast (around 2 mile each other, according to the length of each Compartment). Within each transect, sampling stations will be settled at fixed distances (0.25 nautical miles for *C. gallina*) until the presence of clams will be detected (usually at a distance corresponding to 12-14 m of depth for *C. gallina*). The catch of striped clam will be conveyed to a mechanical vibrating sieve, composed of a sieving plane (19 mm hole diameter). All striped venus clams retained by the sieve will be weighed. For each sample, length frequency distribution of clams will be studied. One of the purposes of biological sampling is to study the fraction of juvenile clams. To sample the juveniles striped venus, a net bag sampler with small meshes will be mounted inside the dredge. Size frequency distribution of this sample will be also recorded.

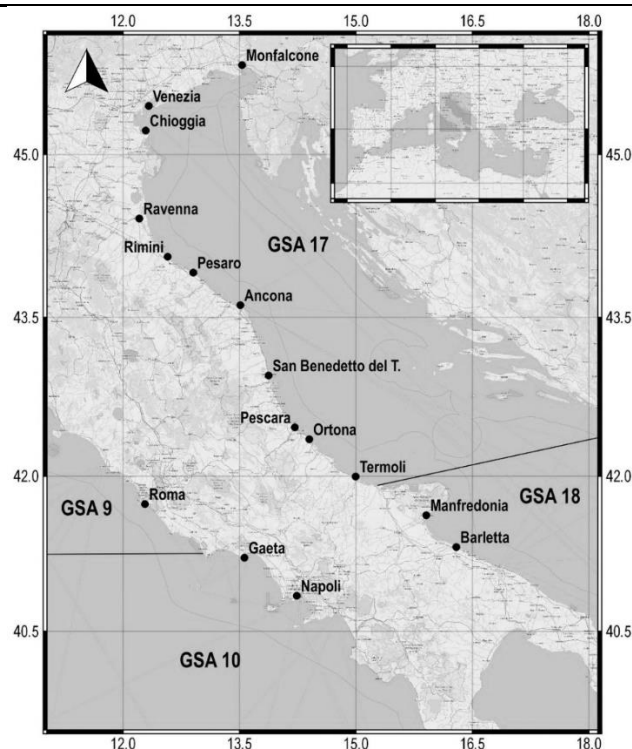


Figure d) DRES survey

3. For internationally coordinated surveys, describe the participating Member States/vessels.

Not relevant

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

Not relevant

Name of the research survey

DRES Ensis (non-mandatory survey)

1. Objectives of the survey

The survey aims to assess the status of the razor clam *Ensis minor* in the central Tyrrhenian Sea (GSA 9 and 10) where the species is a main target of the hydraulic dredges, usually caught within 0.3 nm from the coast at a maximum depth of 4-6 m. Scientific surveys will be conducted to assess the spatial distribution, the abundance and the main biometric measurements (length and weight) of the species.

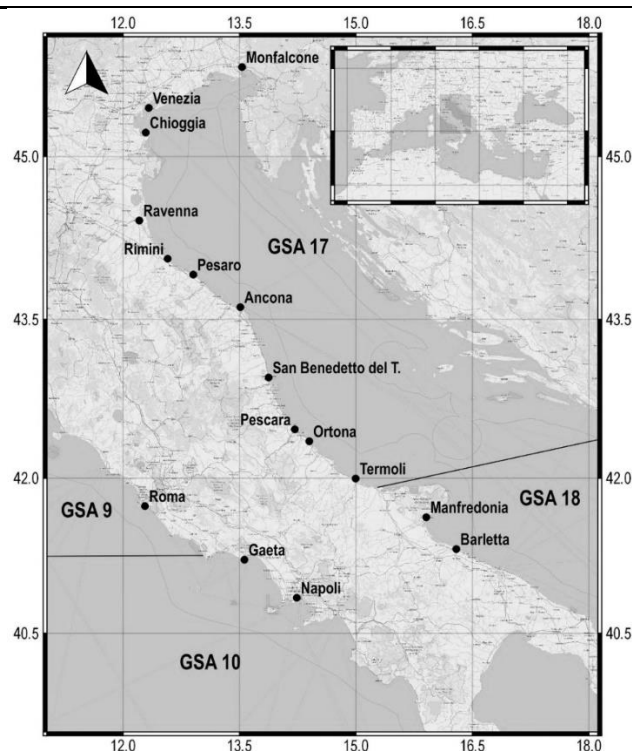


Figure d) DRES survey

2. Description of the survey design and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey

The more recent surveys have been conducted following the standard protocol used on a national scale. A specific survey manual has been prepared in 2018 and it is available on the Italian DCF website (DRES, 2018; Protocol for Dredgers Mollusc Surveys available at https://dcf-italia.cnr.it/rest/uploads/Protocollo%20DRES%202.2_PLNRDA). Commercial vessels will be used to conduct the surveys. The commercial hydraulic dredge used to harvest *E. minor*, are similar and will comprise a rectangular cage 3 m wide, weighing 0.6 t, mounted upon two sledge runners. The cage is connected to a hose, which serves to eject water under pressure from the nozzles at the mouth of the dredge and inside the dredge cage. Surveys for *E. minor* will be conducted in 3 marine compartments (Roma, Gaeta, Napoli; GSA 9 and GSA 10, see Fig. d). Each compartment will be surveyed along regularly spaced transect perpendicular to the coast (around 2 mile each other, according to the length of each Compartment). Within each transect line, sampling stations will be settled at fixed distances/depths (0.25 nautical miles; every 2 m of depth) until the presence of clams will be detected (usually at a distance corresponding to 6-8 m for *E. minor*). In each sampling station, an area of around 300 m² will be surveyed (width of cage 3 m x 100 m of tow). At the end of the tow, the cage will be hauled, and its contents spilled into a collecting box. All specimens retained by the sieve will be weighed. For each sample, length frequency distribution of razor clam will be studied. To sample the juveniles razor clams, a net bag sampler with small meshes will be mounted inside the dredge. Size frequency distribution of this sample will be also recorded.

3. For internationally coordinated surveys, describe the participating Member States/vessels.

Not relevant

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

Not relevant

Name of the research survey

DRES Callista (non-mandatory survey)

1. Objectives of the survey

The survey aims to assess the spatial distribution, the abundance and the main biometric measurements (length and weight) of *Callista chione* in the n the North Adriatic (GSA 17) where the species is a main target of the hydraulic dredges.

2. Description of the survey design and methods used in the survey for each type of data collection as listed in Table 2.6 for this specific survey

The recent surveys have been conducted following operating standard protocol used on a national scale. A specific survey manual has been prepared in 2018 and it is available on the Italian DCF website (DRES, 2018; Protocol for Dredgers Mollusc Surveys https://dcf-italia.cnr.it/rest/uploads/Protocollo%20DRES%202.2_PLNRDA). Commercial vessels will be used to conduct the surveys.

Surveys for *Callista chione* clam will be conducted in 3 marine compartments (Monfalcone, Venezia and Chioggia; GSA 17, see Fig. d). Each compartment will be surveyed along regularly spaced transect lines perpendicular to the coast (around 2 mile each other, according to the length of each Compartment). For *Callista chione* clam sampling stations are chosen at random inside traditional fishing grounds. In each sampling station, an area of around 300 m² will be surveyed (width of cage 3 m x 100 m of tow). At the end of the tow, the cage will be hauled, and its contents spilled into a collecting box. To sample juveniles, a net bag sampler with small meshes will be mounted inside the dredge. All specimens retained by the sieve will be weighed and measured.

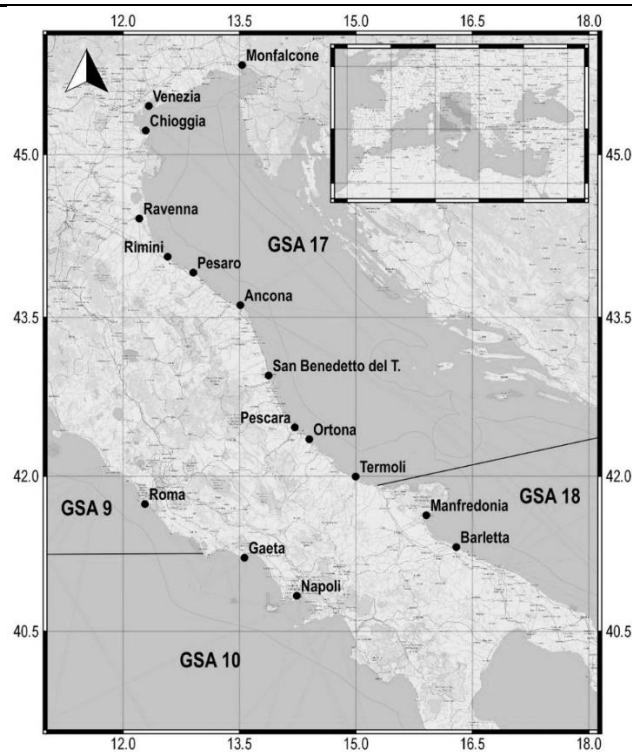


Figure d) DRES survey

3. For internationally coordinated surveys, describe the participating Member States/vessels.

Not relevant

4. Where applicable, provide more details on the type of participation and/or threshold agreement applied.

Not relevant

(max. 450 words per survey)

(max. 450 words per survey)

(max. 450 words per survey)

SECTION 3: FISHING ACTIVITY DATA

Text Box 3.1: Fishing activity variables data collection strategy

General comment: This text box fulfils Article 5 (2)(c), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 3.1 of the EU MAP Delegated Decision annex. It is intended to describe the method used to derive estimates for representative samples where data are not to be recorded under Control Regulation (EC) No 1224/2009 or where data collected under Regulation (EC) No 1224/2009 are not at the right aggregation level for the intended scientific use. Text Box 3.1 should be filled only if complementary data collection is planned

Explain the reasons for implementing complementary data collection

The collection of transversal data will be done in a differentiated manner for the following categories of fleets.

- Fleet LoA > 10 meters: control Regulations (logbook)
- Fleet LoA < 10 meters: PSS - Probability Sample Survey
- Dredgers: control Regulations (logbook)

Data from the control regulation will be used as source for collecting fishing activity variables for fleets with LoA>10 m. The fleet with LoA< 10 meters is exempt from compliance with the control regulation and therefore is subject to probability sample survey (PSS).

Below 10 meters the vessels are exempt from regulation control, so the data source will only be sample survey. The target population (below LoA 10m) entered in the Common Fleet Register (CFR) equal to 7589 vessels. The sampling is stratified, therefore the fishing vessels are divided into homogenous groups based on the criteria established in Table 8 of the EU MAP Delegated Decision annex. However, for the purpose of more efficient spatial coverage, stratification at the Nuts 2 area level is envisaged.

In view of the multiplicity of variables to be estimated, present in Tab 6 of the EU MAP Delegated Decision annex, the optimum sample number per stratum is defined according to Bethel's procedure (1989), the vessels are selected using PPS methodology (Probability Proportional to Size) and, to be more exact, using the algorithm of Hanurav-Vijayan. To obtain an estimate of totals per stratum the Horvitz-Thomson estimator is used, while the Sen-Yates-Grundy formula is used to estimate the relative sampling error. However, the final phase to estimate the universe carried-over is preceded by a set of control and correction procedures of sample data to guarantee results with a determined level of quality.

The data reported and transmitted under Regulation (EC) No 1224/2009, logbooks, sales notes and positional data, such as VMS data, shall be made available in primary form. Then check and validate on a monthly basis.

The survey sample is based on the daily collection of data on a random sample of boats.

Data will be collected on a daily basis. As scheduled by the sample survey, the collectors store data by means of specific web software, and send them every week to the control center.

The software is structured sequentially with filters aimed at avoiding partial or inconsistent answers during the compilation of the questionnaire, in addition, control procedures and filters have been implemented, in order to minimize the non-sample errors possible in the typing phase of the data.

The data will be subject to control and, if necessary, corrections in order to guarantee final results adhering to reality in compliance with the quality levels prescribed by the national and European statistical bodies.

The controls are based on the time series of data already validated for previous years and on parameter acceptance grids (e.g. length of vessel networks; number of hooks; price per species, etc.) implemented in the database.

Dredgers fleet. The units engaged in fishing for clams (*Chamelea gallina*, striped venus), based on specific ministerial decrees are associated in the Management Consortium established on the basis of single maritime districts. Consortia, managed on a monthly basis, both the activity level and the maximum amount withdrawable per day of fishing. Considering that the vessels are required to make the declarations provided for by the control regulation and by the Consortia, the sample survey is considered useless.

Text Box 3.2: Fishing activity variables data collection strategy (for inland eel commercial fisheries)

General comment: This text box fulfils Article 5(2)(c), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 3.2 of the EU MAP Delegated Decision annex. It is intended to describe the methods and data sources used to estimate fishing capacity, effort and landings data.

Eel commercial fisheries in inland waters area highly heterogeneous being spatially dispersed in different habitats in many sites, and relying on many different fishing gears and typologies.

SECTION 4: IMPACT OF FISHERIES ON MARINE BIOLOGICAL RESOURCES

Text Box 4.2: Incidental catches of sensitive species

General comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 4.1 of the EU-MAP Delegated Decision annex. This text box complements Table 2.5.

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight information on sampling schemes and sampling frames related to incidental catches of sensitive species.

Incidental bycatch of sensitive (Protected, Endangered and Threatened – PET) species) will be recorded through the SciObsAtSea sampling scheme, additional information will be collected through dedicated interviews on shore in the framework of the SciObsOnShore sampling scheme.

- Has an assessment of the relative risk of bycatch for the different gear types/metiers taken place and been taken into account for the sampling design?

A complete assessment of the relative risk of bycatch for the different gear types/metiers was not realised yet. According to Recommendation 4 of RCG Med&BS 2021, a joint workshop of RCG Med&BS and STREAMLINE on data needed to assess the impact of fisheries on the marine ecosystem will be realised in 2022.

- What are the gear types/metiers that present the highest risk of bycatch per species/taxa of PETS in a given region?

Through a series of pilot activities, it has been defined that pelagic trawls, demersal trawls, bottom and surface longlines and fixed nets are considered to be high risk gear types for by catch of PETS. One of the follow up actions is to identify high risk metiers by group of species for by-catch monitoring, taking into account the results of pilot studies. Particular attention will be given to pelagic trawlers on the base of Reg (UE) 2019/124.

- What are the methods to calculate the observation effort?

For on board sampling of pelagic trawls, bottom trawls, , purse seiners for large pelagics, and beam trawls, bycatch is recorded by scientific observers for the entire duration of the fishing. Additionally, a questionnaire will be developed and used in interviews to obtain information about bycatch at landing sites for pelagic trawls, demersal trawls, beam trawls, gillnets, trammel nets, and bottom and surface longlines. Fishermen will be asked to provide information about quantitative and qualitative structure of the bycatch. The scientific observer is requested to monitor all the bycatches during the entire fishing trip. Additionally, in the framework of the SciObsOnShore sampling scheme, to ensure data quality, observers are instructed to take photos of the haul at the opening of the cod-end before the shorting process begins, as well as photos of the specimens of rare species caught.

The PSU is the fishing trip. The on-board observers are instructed to check throughout the whole fishing operation for incidental by-catch of PET species and species indicating VMEs on the recorded fishing trips. As a result, the observation effort is calculated as the ratio between observed trips to total trips (total effort) per métier and GSA.

Particular attention is given to the monitoring of PET for pelagic trawlers through Scientific Observers at Sea, in observance of REGULATION (EU) 2019/1241 where a specific increase of the sampling effort is foreseen (see also annex 1.1)

- Does the sampling design and protocol follow the recommendations from relevant expert groups? Provide appropriate references. If there are no relevant expert groups, the design and protocol have to be explained in the text.

Yes.

RCG MED & BS 2021 Recommendation 8: Agreement on methodology for data collection on incidental catch of vulnerable species on the following methodology:

FAO. 2019. Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection. FAO Fisheries and Aquaculture Technical Paper No. 640. Rome, FAO: <https://www.fao.org/gfcm/publications/series/technical-paper/640/en/>

Additional information on observer protocols (if already filled in in Annex 1.1, indicate where it can be found):

- Does the on-board observer protocol contain a check for rare specimens in the catch at opening of the cod-end? If YES is the observer instructed to indicate if the cod-end was NOT checked in a haul?

Yes, onboard observers do check for rare specimens and are instructed to indicate if the cod-end was not checked.

- In gill nets - and hook-and-line fisheries: does the on-board observer protocol instruct the observer to indicate how much of the hauling process has been observed for (large) incidental bycatches that slip out of the net?

Not applicable

- In large catches: does the protocol instruct to check for rare specimens during sorting of the catch (i.e. at conveyor belt)? Is the observer instructed to indicate what percentage of the sorting or hauling process has been checked at "haul level"?

Yes, both of these are carried out accordingly.

Additional information on sampling schemes

Member State may add specific contextual information related to a region and the implementation year(s), for instance highlighting new developments not yet detailed in the quality document, regional adaptation and/or perspectives for the future. Insert the information under the same sampling scheme identifier as in Table 2.5.

Not applicable.

Additional description on sampling frames

Member State may add complementary description to what includes the 'Sampling frame description' column of Table 2.5. Insert the information under the same identifier and name as in columns 'Sampling frame identifier' and 'Sampling frame description' of Table 2.5, and in the same order (Sampling frame identifier + Sampling frame description).

Not applicable.

Text Box 4.3: Fisheries impact on marine habitats

General comment: This text box fulfils Article 5 paragraph 2(a) and 2(b), Article 6 paragraph 3(a), 3(b) and 3(c) of Regulation (EU) 2017/1004 and Chapter 2, section 4.2 of the EU MAP Delegated Decision annex. It contains information on additional studies on the fisheries impact on marine habitats.

1. Aim of the study

Ecosystems are spatially heterogeneous and spatial patterns and processes are important to ecosystem structure and function, whereas the distribution of fishing activities depends on the distribution of the targeted resource. Mediterranean regulations very often have a spatial component explicitly through time and area closures. Spatial management tools are used to protect spawning aggregations, to reduce bycatch, or to meet other single-species objectives. Within this framework, this study aims at providing ecosystem indicators for spatial effort to define and to evaluate management measures.

2. Duration of the study

From 2022 to 2024.

3. Methodology and expected outcomes of the study

Within the Italian WP, the following ecosystem indicators for spatial effort will be estimated:

- “Distribution of fishing activities”. It will be based on the total area of grids (3 km x 3 km) within which VMS records were obtained, each month. This indicator will apply MCDA (Multi-Criteria Decision Analysis) to estimate the contribution of the small-scale fisheries, attempting to provide an overall representation of fishing effort.
- “Swept area of fishing activities”. It will be based on assessment of fishing effort by the total monthly swept area with respect to the 3 km x 3 km grid, for the portion of the fleet equipped by VMS and/or AIS.
- “Aggregation of fishing activities”. It will be based on the total area of grids (3 km x 3 km) within which 90% of VMS records were obtained, each month.
- “Gini’s Index of the fishing pattern”. It will be represented by the value of the Gini’s index computed, at a monthly scale, on the fishing effort pattern (hours of fishing per cell) returned within the computation of the indicators 5.
- “Areas not impacted by mobile bottom gears”. Indicator of the area of seabed that has not been impacted by mobile bottom fishing gears in the last year. It will be computed also at a monthly scale.
- “Substrates not impacted by mobile bottom gears”. Indicator of the area of seabed that has not been impacted by mobile bottom fishing gears in the last year with respect to the type of sea bottom substrates (fishing effort will be mapped on substrates distributions) and or bathymetric stratum (0–20m, 20–50m, 50–80m, 80–130m, 130–200 m, 200–500 m, 500–800 m, 800–1000 m, > 1000m). It will be computed at both annual and monthly scale.

The proposed ecosystem indicators will provide estimations and distribution of spatial effort. In order to assess the impact of fisheries on marine habitats, the proposed indicators will be combined with habitat information. To this aim, the seabed habitats mapped within the EMODNET project will be used

(<http://www.emodnet.eu/seabed-habitats>).

SECTION 5: ECONOMIC AND SOCIAL DATA IN FISHERIES

Text Box 5.2: Economic and social variables for fisheries data collection

General comment: This text box fulfils Article 5(2)(d), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 5 of the EU MAP Delegated Decision annex. It is intended to specify the data to be collected under Tables 7, 8 and 9 of the EU MAP Delegated Decision annex.

1. Description of clustering

The fleet will be clustered into homogeneous groups of vessels as defined by table 5B of EUMAP, according to the prevalent fishing technique. A further segmentation of the fleet based on a geographical criterion (combinations of administrative region and FAO geographical sub-areas (GSA)) will be used in the sampling design to improve the representativeness of the sample. This level of stratification may generate very small strata that have to be clustered to ensure statistical confidentiality and in order to design a statistically sound sampling plan. Such a clustering scheme will be consistent with previous years and will be maintained constant over time. The software MAUSS-R Multivariate Allocation of Units in Sampling Surveys, developed by ISTAT (Italian National Institute of Statistics) will be used in order to identify sample size, to allocate them among strata and to minimize it according to maximum accepted sampling errors of target estimates for each stratum.

According to the different types of data collection used to collect the variables, different data sources will be taken into account, as following:

- Accounts will be used for financial position
- Logbook and questionnaires will be used for days at sea and landings;
- National statistics (official administrative records) will be used for reporting operating subsidies, subsidies on investments, income from leasing out quota or other fishing rights and lease/rental payments for quota or other fishing rights;
- Fleet Register will be used for the number of fishing enterprises and for variables related to the fleet (number of vessels, mean LOA of vessels, vessel's tonnage, etc.);
- Fleet register and ad hoc questionnaires will be used for estimating consumption of fixed capital and value of physical capital
- Ad hoc electronic questionnaires will be used to collect the rest of the variables.

The population will be all active and inactive vessels registered in the Union Fishing Fleet Register as defined in Commission Regulation (EC) No 26/2004 on 31 December of the reporting year and vessels that do not appear on the Register at that date but have fished at least one day during the reporting year.

Different methodologies and data sources will be used to collect the variables:

1. A probability sample survey (PSS) will be implemented to estimate the following variables:
 - Days at sea (LoA<10M);
 - Employment (by age, gender, level of education, nationality);
 - Energy consumption and energy costs;
 - FTE and FTEs by gender;
 - Gross value of landings (LoA<10M);
 - Investments in tangible assets, net;
 - Other income, variable costs and non-variable costs;

- Paid labour;
 - Personnel costs;
 - Repair and maintenance costs;
 - Total hour worked per year;
 - Unpaid labour, unpaid labour by gender and value of unpaid labour.
2. A non-probability sample survey (NPS) will be implemented to estimate financial position;
 3. Through census (C) will be collected subsidies and number of fishing enterprises, variables related to the fleet;
 4. An indirect survey (IND) based on PIM (Perpetual Inventory Method) estimation will be implemented to estimate value of physical capital, consumption of fixed capital, value of quota and other fishing rights and total assets.

Primary data referred to year n will be collected in year $n+1$ through the sample survey and will be subjected to: a) a control process, b) correction of outliers and estimation of missing data, c) elaborations for the estimation of the final variables.

Clustering of fleet segments

Table 5.1 reports the segments that have been clustered. Clusters are named after the biggest segment in terms of number of vessels. Segments have been distinguished in: important segments with distinct characteristics; segments similar to other segments; non-important segments with distinct characteristics. Importance of fleet segments has been assessed in terms of landings (value and volume). Only “segments similar to other segments” have been clustered for sampling purposes. Similarity is explained in the following text using expert knowledge on fishing patterns and on available data on capacity structure.

The clustering of dredgers is justified by the fact that vessels are very specialised targeting clams and smooth-callista (*Venus gallina* and *Callista chione*) and they are homogenous in terms of size, gears and fishing practises. Vessels have an average LOA of 13.4 meters and 85% of them belong to the class 12-18 meters. Therefore, the split into the class <12 m and > 12 meters is not statistical reliable for this segment. Moreover, it is demonstrated that revenues are not correlated with the LOA of the vessels and this fact proves the high level of homogeneity of the vessels.

The segment “Vessels using hooks 18 - 24 m” has been clustered with the segment “Vessels using hooks 24 - 40 m” that is composed by only 2 vessels and the clustering is necessary in order to design the sampling plan. Vessels using polyvalent "passive" gears 12 - 18 m have been clustered with the 7 vessels belonging to the classes 18-24 m and 24-40 m in order to design the sampling plan.

Text Box 6.1: Economic and social variables for aquaculture data collection

General comment: This text box fulfils Article 5(2)(e), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 6 of the EU MAP Delegated Decision annex. It is intended to specify the data to be collected under Tables 10 and 11 of the EU MAP Delegated Decision annex.

1. Description of the threshold application

Based on the latest 2018 data, available on Eurostat for Europe with 27 Member States, the production of Italian aquaculture, with a production of 142,700 t, represents about 13% of the European total, placing itself in second place after Spain, with about 319,000 t (28%) and France with 186,700 (17%). The thresholds that will be applied to the individual production segments (see Table 11 of the EU MAP) for the collection of economic data will be in accounting for less than 5% of the Member State's aquaculture production by both weight and value.

2. Deviation from the RCG ECON (ex. PGECON) definitions

In the data collection activity there are no deviations and changes from the provisions of the EU MAP Guidance Document. The specifications will be maintained regarding the Aquaculture techniques, the Aquaculture species group and the Type of variable and Economic and Social variables

Text Box 7.1: Economic and social variables for fish processing data collection

General comment: This text box fulfils Article 5(2)(f), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 7 of the EU MAP Delegated Decision annex. The Member State should provide justifications for complementary data collection for fish processing.

Data collection for the fish processing sector is planned to be carried out following the same approach as in previous years. Detailed data (by size classes and by NUTS2) on processing industry is needed in Italy as additional data is required for supporting the programming and the evaluation of measures targeting the fishing processing industry which are planned for the Italian programming period 2021-2027 under the umbrella of EMFAF.

ANNEX 1.1 - QUALITY REPORT FOR BIOLOGICAL DATA SAMPLING SCHEME

The quality report fulfils Article 6(3)(d) of Regulation (EU) 2017/1004. This document is intended to specify data to be collected under Chapter II, point 2 of the EU MAP Delegated Decision annex: 'Biological data on exploited biological resources caught by Union commercial and recreational fisheries'. Use this annex to state whether documentation in the data collection process (design, sampling implementation, data capture, data storage, sample storage and data processing) exists and identify where this documentation can be found. Names of sampling schemes and strata shall be identical to those in Tables 2.2, 2.3, 2.4, 2.5, 2.6 and 4.1 of the WP/AR. For quality information on scientific surveys, use the survey acronym as a sampling scheme identifier. For mandatory surveys, refer to Table 1 of the EU MAP Implementing Decision annex, see also MasterCodeList 'Mandatory survey at sea'.

MS : ITA
Region : Mediterranean and Black Sea
Sampling scheme identifier : Sci Obs Shore Commerc Sel Stock
Sampling scheme type: Commercial fishing trip
Observation type: SciObsOnShore
Time period of validity : from 2022 until 2024
Monitored species are those included in Annex, Table 1 of the EU MAP Delegated Decision annex whose landing resulted higher than the threshold of 200 tons or the 10% of the yield of MS's fisheries in the Region. Sampling will be performed on the metier selected through the ranking system procedure, in order to evaluate biological characteristics of selected species in the catches, including discarded fraction. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme. To complement the monitoring on incidental catches of Protected, Endangered and Threatened species (PET) a series of interviews will be performed in correspondence with the on shore data collection for the metiers where the occurrence of accidental catches is more likely as pelagic trawls, demersal trawls, bottom and surface longlines and fixed nets (see also Text Box 4.2 and Table 2.5).
Description of the population
<p>Population targeted:</p> <p>The target population for the reference year will be the mean number of fishing trips by metier of the most recent three years. Fishing trip will be considered equal to fishing day.</p> <p>Population sampled:</p> <p>The sampled population will be a selection of fishing trips, mainly on spatial (GSA) and time stratification basis (quarterly) with measurements of the composition of the catch in order to detect seasonal differences in the demographic structure and composition of the landings and discards for different metier. Catch of selected fishing trip will be sampled directly at landing. The number of fishing trips to be sampled by metiers and GSA is reported in table 2.5</p> <p>Stratification:</p>

Metiers by GSA to be sampled were identified by a ranking system. Metiers by GSA contributing to the 90% of the cumulated yield, effort and value of landing of Italy were selected for sampling.

Sampling design and protocols

Sampling design description:

The sampling will be accomplished according to the methods of a two-stage stratified random sampling: the sampling unit belonging to the metier (primary unit) will be the fishing trip (secondary unit). The number of fishing days to be sampled has been defined proportionally to the effort (number of days at sea for each metier).

Is the sampling design compliant with the 4S principle?:

N. The adopted sampling design is NPCS

Regional coordination:

Italy coordinates its national plan with that of the other Member States within the following Regional Coordination Groups: RCG MED & BS (coordination group for the Mediterranean and Black Sea), RCG LP (coordination group for large pelagics), RCG LDF (coordination group for fisheries in areas other than the Mediterranean). The role of the RCG, in addition to facilitating this coordination, is to develop and implement the procedures, methods, quality control for the collection and processing of data, to further improve the reliability of scientific opinions. In addition, regional coordination groups can develop draft regional work plans, compatible with the multi-year program of the Union (Article 9 of EU Reg. 1004/2017).

Link to sampling design documentation:

A summary of the methodologies applied for the estimation of demography of landings, discards, the calculation of growth and reproduction parameters, and the related precision levels, it is provided under the following link <https://dcf-italia.cnr.it/rest/uploads/Linee%20guida%20Raccolta%20dati%20biologici>

Compliance with international recommendations:

Y. The Work Plan follows the recommendations made by the GFCM, RCG Med&BS and RCG LP **Link to sampling protocol documentation:**

A summary of the methodologies applied for the estimation of demography of landings, discards, the estimation of growth and reproduction parameters, and the related precision levels, it is provided at the following link <https://dcf-italia.cnr.it/rest/uploads/Linee%20guida%20Raccolta%20dati%20biologici>

Sampling implementation

Recording of refusal rate:

NA

Monitoring of sampling progress within the sampling year:

In case a fishing boat will not available for sampling a given metier, it will be substituted by a similar one.
Data capture
<p>Means of data capture:</p> <p>Biological data will be collected at laboratories by scales, measuring board, stereomicroscope and dedicated software. Information on catch and fishing operation of the sampled trip will be obtained by interviews. A sample of discarded fraction of catches will be self-sampled by fishers following a standardized protocol furnished by researchers. Data reported and transmitted under Regulation (EC) No 1224/2009, including logbooks, sales notes and positional data, such as VMS data, will be also used to verify the interview information.</p> <p>Data capture documentation:</p> <p>NA</p> <p>Quality checks documentation:</p> <p>Y</p>
Data storage
<p>National database:</p> <p>The Italian data base FishDataNet is available at:</p> <p>https://dcf-italia.cnr.it/web/International database:</p> <p>Italian data collected within the DCF program are submitted by data call and stored in EU JRC and GFCM database</p> <p>Quality checks and data validation documentation:</p> <p>Quality and consistency controls implemented by Italy are based on the ISYCAMPBIOL system developed by COISPA Tecnologia & Ricerca to store, check and process the data collected in the Italian National Program with reference to variables relating to monitoring of commercial catch.</p> <p>Documentation can be found at link:</p> <p>https://dcf-italia.cnr.it/rest/uploads/Controlli%20qualit%C3%A0%20variabili%20biologiche.</p>
Sample storage
<p>Storage description:</p> <p>Soft organic tissues are kept frozen or kept in cold storage. Hard structures (otoliths, etc.) are kept in dry storage. All of these storage systems are securely kept.Sample analysis:</p>

<p>Information on the processing of the biological samples of catch is provided at link:</p> <p>https://dcf-italia.cnr.it/rest/uploads/Linee%20guida%20Raccolta%20dati%20biologici</p>
Data processing
<p>Evaluation of data accuracy (bias and precision):</p> <p>Y; https://dcf-italia.cnr.it/rest/uploads/Controlli%20qualit%C3%A0%20variabili%20biologiche</p> <p>Editing and imputation methods:</p> <p>Y</p> <p>Quality document associated to a dataset:</p> <p>Y; https://dcf-italia.cnr.it/rest/uploads/Controlli%20qualit%C3%A0%20variabili%20biologiche Validation of the final dataset:</p> <p>Final dataset will be done within the national DataBase.</p>

MS : ITA
Region : Mediterranean and Black Sea
Sampling scheme identifier : Sci Obs Sea Commerc Sel Stock
Sampling scheme type: Commercial fishing trip
Observation type: SciObsAtSea
Time period of validity : from 2022 until 2024
<p>Monitored species are those included in Annex, Table 1 of the EU MAP Delegated Decision annex whose landing resulted higher than the threshold of 200 tons or the 10% of the yield of MS's fisheries in the Region. Sampling will be performed on the metier selected through the ranking system procedure, in order to evaluate length distribution of selected species in the catches, including discarded fraction.</p>
Description of the population
<p>Population targeted:</p> <p>The target population for the reference year will be the mean number of fishing trips by metier of the most recent three years. Fishing trip will be considered equal to fishing day.</p> <p>Population sampled:</p> <p>The sampled population will be a selection of fishing trips, mainly on spatial (GSA) and time stratification basis (quarterly) with measurements of the composition of the catch in order to detect seasonal differences in the demographic structure and composition of the landings and discards for different metier. Catch of selected fishing</p>

trip will be sampled directly at landing. The number of fishing trips to be sampled by metiers and GSA is reported in table 2.5

Stratification:

Metiers by GSA to be sampled were identified by a ranking system. Metiers by GSA contributing to the 90% of the cumulated yield, effort and value of landing of Italy were selected for sampling.

Sampling design and protocols

Sampling design description:

The sampling will be accomplished according to the methods of a two-stage stratified random sampling: the sampling unit belonging to the metier (primary unit) will be the fishing trip (secondary unit). The number of fishing days to be sampled has been defined proportionally to the effort (number of days at sea for each metier).

Particular attention is given to the monitoring of PET for pelagic trawlers through Scientific Observers at Sea, in observance of REGULATION (EU) 2019/1241 where a specific increase of the sampling effort is foreseen.

The species for which length and additional biological parameters are collected, are listed in Tables 2.1 and 2.2 respectively.

The PET species for which data are collected are those included in the FAO (2019) manual “Monitoring incidental catch of vulnerable species in the Mediterranean and Black Sea: methodology for data collection. For all these species, all catch fractions, i.e. landings, discards and incidental catches (Protected, Endangered and Threatened species – PET) are recorded by the on board observer (see also Text Box 4.2)

The PET monitoring protocol foresees that for each haul observations on accidental catches of cetaceans, sharks, rays, sea turtles and sea birds are recorded in terms of species and number of individuals, and any additional information

Reference FAO. 2019. Monitoring incidental catch of vulnerable species in the Mediterranean and Black Sea: methodology for data collection. FAO Fisheries and Aquaculture Technical Paper N 640. Rome, FAO

link: <https://www.fao.org/gfcm/publications/series/technical-paper/640/en/>.

Is the sampling design compliant with the 4S principle?:

N. The adopted sampling design is NPCS

Regional coordination:

Italy coordinates its national plan with that of the other Member States within the following Regional Coordination Groups: RCG MED & BS (coordination group for the Mediterranean and Black Sea), RCG LP (coordination group for large pelagics), RCG LDF (coordination group for fisheries in areas other than the Mediterranean). The role of the RCG, in addition to facilitating this coordination, is to develop and implement the procedures, methods, quality control for the collection and processing of data, to further improve the reliability of scientific opinions. In addition, regional coordination groups can develop draft regional work plans, compatible with the multi-year program of the Union (Article 9 of EU Reg. 1004/2017).

Link to sampling design documentation:

A summary of the methodologies applied for the estimation of demography of landings, discards, the estimation of growth and reproduction parameters, and the related precision levels, it is provided under the following link <https://dcf-italia.cnr.it/rest/uploads/Linee%20guida%20Raccolta%20dati%20biologici>

<p>Compliance with international recommendations:</p> <p>Y. The Work Plan follows the recommendations made by the GFCM, RCG Med&BS and RCG LP</p> <p>Link to sampling protocol documentation:</p> <p>A summary of the methodologies applied for the estimation of demography of landings, discards, the calculation of growth and reproduction parameters, and the related precision levels, it is provided at the following link https://dcf-italia.cnr.it/rest/uploads/Linee%20guida%20Raccolta%20dati%20biologici</p>
Sampling implementation
<p>Recording of refusal rate:</p> <p>NA</p> <p>Monitoring of sampling progress within the sampling year:</p> <p>In case a fishing boat will not available for sampling a given metier, it will be substituted by a similar one.</p>
Data capture
<p>Means of data capture:</p> <p>Biological data will be collected both on board and at laboratories by scales, measuring board, stereomicroscope and dedicated software.</p> <p>Data capture documentation:</p> <p>NA</p> <p>Quality checks documentation:</p> <p>Y ; https://dcf-italia.cnr.it/rest/uploads/Controlli%20qualit%C3%A0%20variabili%20biologiche</p>
Data storage
<p>National database:</p> <p>The Italian data base (FishDataNet) is available at:</p> <p>https://dcf-italia.cnr.it/web/</p> <p>International database:</p> <p>Italian data collected within the DCF program are submitted by data call and stored in EU JRC and GFCM database</p> <p>Quality checks and data validation documentation:</p> <p>Quality and consistency controls implemented by Italy are based on the ISYCAMPBIOL system developed by COISPA Tecnologia & Ricerca to store, check and process the data collected in the Italian National Program with reference to variables relating to monitoring of commercial catch.</p> <p>Documentation can be found at link:</p> <p>https://dcf-italia.cnr.it/rest/uploads/Controlli%20qualit%C3%A0%20variabili%20biologiche.</p>

Sample storage
<p>Storage description:</p> <p>Y; Soft organic tissues are kept frozen or kept in cold storage. Hard structures (otoliths, etc.) are kept in dry storage. All of these storage systems are securely kept.</p> <p>Sample analysis:</p> <p>Information on the processing of the biological samples of catch is provided at link: https://dcf-italia.cnr.it/rest/uploads/Linee%20guida%20Raccolta%20dati%20biolog</p>
Data processing
<p>Evaluation of data accuracy (bias and precision):</p> <p>Y; https://dcf-italia.cnr.it/rest/uploads/Controlli%20qualit%C3%A0%20variabili%20biologiche</p> <p>Editing and imputation methods:</p> <p>Y</p> <p>Quality document associated to a dataset:</p> <p>Y; https://dcf-italia.cnr.it/rest/uploads/Controlli%20qualit%C3%A0%20variabili%20biologiche</p> <p>Validation of the final dataset:</p> <p>Final dataset will be done within the national DataBase.</p>

Table Annex 1.1.1 Species/stock selected for commercial sampling

Species	Covered by a commercial sampling scheme for length	Selected for sampling of biological variables	Areas covered by commercial sampling
<i>Anguilla anguilla</i>	Y	Y	The 9 Italian Eel Management Units (EMUs) under Regulation 1100/2007
<i>Aphia minuta</i>	Y	N	GSA 9
<i>Aristaeomorpha foliacea</i>	Y	Y	GSA 9, 11, 10, 16, 18 and 19.

<i>Aristeus antennatus</i>	Y	Y	GSA 9, 10, 11, 16, 18 and 19.
<i>Boops boops</i>	Y	Y	GSA 9, 10 and 19
<i>Coryphaena hippurus</i>	Y	N	GSA 10 and 16
<i>Engraulis encrasicolus</i>	Y	Y	GSA: 9, 10, 16, 17, 18, and 19.
<i>Merluccius merluccius</i>	Y	Y	GSA: 9, 10, 11, 16, 17, 18, and 19.
<i>Mullus barbatus</i>	Y	Y	GSA: 9, 10, 11, 16, 17, 18, and 19
<i>Mullus surmuletus</i>	Y	Y	GSA 9, 10, 11, 16 and 19
<i>Nephrops norvegicus</i>	Y	Y	GSA: 9, 10, 11, 16, 17, 18, and 19
<i>Pagellus erythrinus</i>	Y	Y	GSA: 9, 10, 11, 16, 17, 18, and 19
<i>Parapenaeus longirostris</i>	Y	Y	GSA: 9, 10, 11, 16, 17, 18, and 19.
<i>Penaeus kerathurus</i>	Y	N	GSA 17 and 18.
<i>Raja asterias</i>	Y	Y	GSA 9, 10 and 11
<i>Raja clavata</i>	Y	Y	GSAs 16, 17 and 18
<i>Sardina pilchardus</i>	Y	Y	GSA: 9, 10, 16, 17, 18, and 19.
<i>Sardinella aurita</i>	Y	N	GSA 9, 10, 16 and 19.
<i>Solea solea</i>	Y	Y	GSA 17 and 18.
<i>Squilla mantis</i>	Y	Y	GSA 17 and 18.

<i>Trigla lucerna</i> (<i>Chelidonichthys lucerna</i>)	Y	N	GSA 17 and 18,
<i>Trisopterus minutus</i>	Y	N	GSA: 17 and18
<i>Euthynnus alletteratus</i>	Y	N	
<i>Sarda sarda</i>	Y	N	
<i>Thunnus alalunga</i>	Y	Y	
<i>Thunnus thynnus</i>	Y	Y	
<i>Xiphias gladius</i>	Y	Y	

Region : Mediterranean and Black Sea
Sampling scheme identifier : MEDITS
Sampling scheme type: Research surveys at sea
Observation type: SciObsAtsea
Time period of validity : from 2022 until 2024
The MEDITS programme aims to conduct international co-ordinated bottom-trawl surveys Mediterranean. The MEDITS survey aims at providing data useful for describing and quantifying changes in the fish populations, through indices of demography, mortality, spatial occupation, biological traits, thus contributing to the routine stock assessments and the development of management advice tools. One survey should be carried out every year, during spring and beginning of summer.
Description of the population
<p>Population targeted:</p> <p>The target population is all demersal species living on soft bottoms between 10 and 800 m depth. Detailed biological information on target species will be recorded according to the MEDITS handbook v.9, 2017). The MEDITS reference list of target species includes 82 demersal species, 32 of them are elasmobranchs (Annex VI of MEDITS handbook v.9, 2017).</p> <p>Within the MEDITS framework, sampling and analysis of diet by size of Hake will be also carried out.</p>

Population sampled:

The population will be sampled to cover at best its distribution areas on the continental shelves and along the upper slope of the main exploited or potentially exploitable species, considering the administrative and technical constraints of the project.

The stations will be distributed in each of the 7 GSA applying a random stratified sampling scheme using as strata the geographical combination of zones and depth. About 670 hauls are scheduled to be carried out during each annual survey.

Stratification:

Five (5) depth strata will be sampled (10-50, 51-100, 101-200, 201-500, and 501-800m).

Sampling design and protocols**Sampling design description:**

The sampling will be follow a depth stratified sampling scheme with random drawing of the positions of the hauls within each stratum. The number of hauls in each stratum is proportional to the area of the depth strata. Except in the case of peculiar problems (damages noted in previous years, etc.), the hauls will be carried out in the same position from year to year.

Is the sampling design compliant with the 4S principle?:

Y

Regional coordination:

Up to now 8 Mediterranean EU countries (Italy, France, Spain, Croatia, Greece, Malta, Slovenia, and Cyprus) and 2 Black Sea EU countries (Romania and Bulgaria), collaborated in the project and permanent links are maintained with relevant bodies (i.e. RCGMed&BS and GFCM). An International MEDITS Coordination Group met at least one time per year. Targets number of hauls, by area and participating countries, are reported in the Annex III of the Medits Handbook (MEDITS-Handbook Version n. 9, 2017).

Link to sampling design documentation:

MEDITS data will be processed and analysed in line with the data collected according to the common protocol (MEDITS-Handbook. Version n. 9, 2017) provided at link

https://dcf-italia.cnr.it/rest/uploads/Medits_Handbook_2017_version_9

Stomach contents of hake by size will be processed and analysed according to the Deliverable 4.1 of MARE/2016/22 STREAM project available at link

<https://datacollection.jrc.ec.europa.eu/mare-2016-22-strengthening-regional-cooperation>

Compliance with international recommendations:

Y

Link to sampling protocol documentation:

https://dcf-italia.cnr.it/rest/uploads/Medits_Handbook_2017_version_9;

https://datacollection.jrc.ec.europa.eu/mare-2016-22-strengthening-regional-cooperation
Sampling implementation
<p>Recording of refusal rate:</p> <p>NA</p> <p>Monitoring of sampling progress within the sampling year:</p> <p>Concerning the stomach contents sampling, if the number of scheduled samples will not reach by the specimens collected during the MEDITS, further samples will be collected within the Sci Obs Shore Commerc Sel Stock and the Sci Obs Sea Commerc Sel Stock</p>
Data capture
<p>Means of data capture:</p> <p>Data on hauling operations will be collected through the on-board instrumentation (GPS and depth sounder). The temperature and salinity of sea water at bottom and the opening of the net in each haul will be monitored. Data will be collected both on board and at laboratories by scales, measuring board, stereomicroscope and dedicated software.</p> <p>Data capture documentation:</p> <p>NA</p> <p>Quality checks documentation:</p> <p>Y</p>
Data storage
<p>National database:</p> <p>FishDataNet Portale Nazionale Dati Alieutici</p> <p>https://dcf-italia.cnr.it/web/International database:</p> <p>Italian data collected within the DCF program are submitted by data call and stored in EU JRC and GFCM database</p> <p>Quality checks and data validation documentation:</p> <p>In order to improve the quality of the MEDITS data and the consistency of the information collected the routine RoME (Bitetto et al., 2017) has been developed for common use, which rationale has been incorporated in the checks made at JRC level during the data upload and the assessment working groups (STECF-EWG). RoME is available at https://www.coispa.it/index.php?option=com_content&view=article&id=25&Itemid=149&lang=en</p>
Sample storage
<p>Storage description:</p> <p>Soft organic tissues will be kept frozen or in cold storage. Hard structures (otoliths, etc.) will be kept in dry storage. Stomach contents will be kept in 70 % ethanol. All of these storage systems are securely kept.</p>

<p>Sample analysis:</p> <p>MEDITS data will be analysed according to the MEDITS-Handbook. Version n. 9 (2017). Stomach contents of hake by size will be analysed according to the Deliverable 4.1 of MARE/2016/22 STREAM project</p>
<p>Data processing</p>
<p>Evaluation of data accuracy (bias and precision):</p> <p>Y</p> <p>Editing and imputation methods:</p> <p>Y</p> <p>Quality document associated to a dataset:</p> <p>https://www.coispa.it/index.php?option=com_content&view=article&id=25&Itemid=149&lang=en</p> <p>Validation of the final dataset:</p> <p>Validation of the final dataset will be done within the national DataBase.</p>

MS : ITA
Region : Mediterranean and Black Sea
Sampling scheme identifier : MEDIAS
Sampling scheme type: Research surveys at sea
Observation type: SciObsAtsea
Time period of validity : from 2022 until 2024
<p>The Pan Mediterranean Acoustic Survey (MEDIAS) has been carried out annually since 2009 in order to assess the abundance and spatial distribution of small pelagic species (anchovy - <i>Engraulis encrasicolus</i>, and sardine - <i>Sardina pilchardus</i>), in the Mediterranean Sea by means of acoustic methodology. Demographic structure and species composition of the pelagic populations has been derived also from pelagic trawls in order to evaluate the abundance and biomass per age, size and sex.</p>
Description of the population
<p>Population targeted:</p> <p>The target population is anchovy and sardine.</p> <p>Population sampled:</p> <p>This research will be based on common protocol (MEDIAS-Handbook, 2019) and will follow a multidisciplinary approach. Synoptically with the acoustic data acquisition, carried out using a multifrequency scientific echo sounder system properly calibrated each year, net samplings on small pelagic fish should be performed by means of a pelagic trawl. The aim is to determine species and size composition of the pelagic biomass (fish sampling is required to</p>

collect representative samples of the population from a qualitative point of view and not a quantitative point of view, as is the case of demersal surveys). Length frequency distribution of all the caught fish species will be recorded. Age samples of *E. encrasicolus* and *S. pilchardus* will be collected and analysed. Analysis of acoustic data will be conducted by means of dedicated software for echograms scrutinization. Further, for an ecosystem-based approach environmental monitoring will be performed, thus CTD oceanographic data (temperature, salinity, fluorescence and dissolved oxygen) will be recorded.

Stratification:

NA

Sampling design and protocols

Sampling design description:

This research will be based on common protocol (MEDIAS-Handbook, 2019) and will follow a multidisciplinary approach. Synoptically with the acoustic data acquisition, carried out using a multifrequency scientific echo sounder system properly calibrated each year, net samplings on small pelagic fish should be performed by means of a pelagic trawl.

Is the sampling design compliant with the 4S principle?:

Y

Regional coordination:

The MEDIAS acoustic surveys, performed in spring-summer, should cover a series of areas in the Mediterranean EU MS (Spain, France, Croatia, Italy, Slovenia and Greece) with a standardised methodology and permanent links are maintained with relevant bodies (i.e. RCGMed&BS and GFCM).

Link to sampling design documentation:

MEDIAS data shall be collected, processed and analysed in line with the data collected according to the common protocol (MEDIAS-Handbook, 2019) provided at link

<https://dcf-italia.cnr.it/rest/uploads/MEDIAS%20Handbook%202019Compliance> with international recommendations:

Y

Link to sampling protocol documentation:

<https://dcf-italia.cnr.it/rest/uploads/MEDIAS%20Handbook%202019>

Sampling implementation

Recording of refusal rate:

NA

Monitoring of sampling progress within the sampling year:

NA

Data capture

<p>Means of data capture:</p> <p>Biological data on anchovies and sardines will be collected both on board and at laboratories by scales, measuring board, stereomicroscope and dedicated software.</p> <p>Data capture documentation:</p> <p>NA</p> <p>Quality checks documentation:</p> <p>https://dcf-italia.cnr.it/rest/uploads/MEDIAS%20Handbook%202019</p>
Data storage
<p>National database:</p> <p>FishDataNet Portale Nazionale Dati Alieutici</p> <p>https://dcf-italia.cnr.it/web/</p> <p>International database:</p> <p>Italian data collected within the DCF program are submitted by data call and stored in EU JRC and GFCM database</p> <p>Quality checks and data validation documentation:</p> <p>NA</p>
Sample storage
<p>Storage description:</p> <p>Soft organic tissues are kept frozen or in cold storage. Hard structures (otoliths, etc.) are kept in dry storage. All of these storage systems are securely kept.</p> <p>Sample analysis:</p> <p>MEDIAS data shall be collected, processed and analysed in line with the data collected according to the common protocol (MEDIAS-Handbook, 2019). The Handbook is provided at link:</p> <p>https://dcf-italia.cnr.it/rest/uploads/MEDIAS%20Handbook%202019</p>
Data processing
<p>Evaluation of data accuracy (bias and precision):</p> <p>Y</p> <p>Editing and imputation methods:</p> <p>Y</p> <p>Quality document associated to a dataset:</p> <p>N</p> <p>Validation of the final dataset:</p> <p>Validation of the final dataset will be done within the national DataBase.</p>

MS : ITA
Region : Mediterranean and Black Sea
Sampling scheme identifier : SoleMon
Sampling scheme type: Research surveys at sea
Observation type: SciObsAtsea
Time period of validity : from 2022 until 2024
<p>The main survey objectives are:</p> <p>a) Assessing abundance and distribution in GSA17 of sole and other important demersal resources by surveys with “rapido” gears suitable to seize flatfish and other benthic animals.</p> <p>b) Pursuing the studies on the ecosystem impact of the “rapido” trawl fishery.</p> <p>c) Finally, survey data will also contribute to the setting of the GES and targets for the Adriatic Sea in the framework of an ecosystem approach. Thus, matching to the requirement of the implementation of the MFSD (DIRECTIVE 2008/56/EC).</p>
Description of the population
<p>Population targeted:</p> <p>The target population is common sole living on soft bottoms of the GSA 17 that, according to the genetic information, pertains as a single stock.</p> <p>Population sampled:</p> <p>Common sole and other benthic fish and shellfish of commercial interest, including rays and other selachians, will be sampled by a modified beam trawl named “rapido” trawl. Survey should be carried out based on the protocol used since 2005 (SoleMon, 2019; Survey – Handbook Version 2019) and utilising the same gear. The gear is and should be appositely planned to fish on different types of bottom. The research vessel should utilize two gears simultaneously in each haul.</p> <p>Stratification:</p> <p>Three (3) depth strata will be sampled (0-30, 31-50, and 51-100m).</p>
Sampling design and protocols
<p>Sampling design description:</p> <p>The hauls are planned according to a depth-stratified sampling scheme with random allocation of the positions of sampling stations within each stratum. The sampling effort is determined on the basis of a number of technical constraints (e.g. vessel availability) . 59 hauls per year will be carried out by Italy in the period 2022-2024.</p> <p>Is the sampling design compliant with the 4S principle?:</p> <p>Y</p>

<p>Regional coordination:</p> <p>The SoleMon programme is currently coordinated at the international level including Italy, Croatia and Slovenia and permanent links are maintained with relevant bodies (i.e. RCGMed&BS and GFCM).. Since 2009 it is also coordinated in the framework of the ICES Working Group on Beam Trawl Survey (WGBEAM).Targets number of hauls, by area and participating countries, are reported in the Solemon Handbook (SOLEMON-Handbook_2019_Ver_4).</p> <p>Link to sampling design documentation:</p> <p>MEDITS data shall be processed and analysed in line with the data collected according to the common protocol (SOLEMON-Handbook_2019_Ver_4) provided at link</p> <p>https://dcf-italia.cnr.it/rest/uploads/SOLEMON-Handbook_2019_Ver_4 Compliance with international recommendations:</p> <p>Y</p> <p>Link to sampling protocol documentation:</p> <p>https://dcf-italia.cnr.it/rest/uploads/SOLEMON-Handbook_2019_Ver_4</p>
Sampling implementation
<p>Recording of refusal rate:</p> <p>NA</p> <p>Monitoring of sampling progress within the sampling year:</p> <p>NA</p>
Data capture
<p>Means of data capture:</p> <p>Data on hauling operations will be collected through the on-board instrumentation (GPS and depth sounder). Data will be collected both on board and at laboratories by scales, measuring board, stereomicroscope and dedicated software. Data capture documentation:</p> <p>NA</p> <p>Quality checks documentation:</p> <p>Y</p>
Data storage
<p>National database:</p> <p>FishDataNet Portale Nazionale Dati Alieutici</p> <p>https://dcf-italia.cnr.it/web/International database:</p> <p>Data will be shared in WGs, both at EU and Mediterranean level, and with all Adriatic member States through common database AtrIS. Italian data collected within the DCF program are submitted by data call and stored in EU JRC and GFCM database</p>

Quality checks and data validation documentation:
NA
Sample storage
Storage description: <p>Soft organic tissues are kept frozen or in cold storage. Hard structures (otoliths, etc.) are kept in dry storage. All of these storage systems are securely kept.</p> Sample analysis: <p>SOLEMON data shall be processed and analysed in line with the data collected according to the common protocol (SOLEMON-Handbook_2019_Ver_4). The Handbook is provided at link: https://dcf-italia.cnr.it/rest/uploads/SOLEMON-Handbook_2019_Ver_4</p>
Data processing
Evaluation of data accuracy (bias and precision): <p>Y; TruSt 1.0 - TRawls sUrveys database sysTem</p> Editing and imputation methods: <p>Y; TruSt 1.0 - TRawls sUrveys database sysTem</p> Quality document associated to a dataset: <p>Y; http://www.kosmosambiente.it/scientifictrawlsurveys/Validation of the final dataset:</p> <p>Validation of the final dataset will be done within the national DataBase.</p>

MS : ITA
Region : Mediterranean and Black Sea
Sampling scheme identifier : DRES Chamelea, DRES Ensis, and DRES Callista
Sampling scheme type: Research surveys at sea
Observation type: SciObsAtsea
Time period of validity : from 2022 until 2024
<p>Scientific surveys will be conducted to assess the spatial distribution of the species. Information from surveys combined with those from commercial data (landings) are necessary for stock assessment and to define the reference points of management plans. The main biometric measurements (length and weight) will be recorded for the mentioned species. Additionally, biological information (e.g. weight, age etc.) will be collected and reported every three years for the striped venus, which has a minimum conservation reference size (22 mm).</p>
Description of the population
Population targeted:

The target populations are Chamelea gallina, living in GSA 17 and 18, Ensis minor living in GSA 9 and 10, and Callista chione living in GSA 17.

Population sampled:

Surveys for C. gallina will be carried out in the 13 marine compartments in the Adriatic Sea (GSA 17 and GSA18, see the map below), surveys for E. minor will be conducted in 3 marine compartments (Roma, Gaeta, Napoli,; GSA 9 and GSA 10), while surveys for C. chione will be performed in 3 marine compartments (Monfalcone, Venezia and Chioggia) of GSA 17.

Stratification:

Each compartment will be surveyed along regularly spaced transect lines perpendicular to the coast (around 2 mile each other, according to the length of each Compartment).

Sampling design and protocols

Sampling design description:

Within each transect line, sampling stations will be settled at fixed distances/depths (0.25 nautical miles for C. gallina; every 2 m of depth for E. minor) until the presence of clams will be detected (usually at a distance corresponding to 12-14 m of depth for C. gallina and 6-8 m for E. minor).

Is the sampling design compliant with the 4S principle?:

Y

Regional coordination:

N

Link to sampling design documentation:

MEDITS data shall be processed and analysed in line with the data collected according to the protocol Manuale per il campionamento DRES -Dredgers Mollusc Surveys Versione 2.2 provided at link

https://dcf-italia.cnr.it/rest/uploads/Protocollo%20DRES%202.2_PLNRDA

Compliance with international recommendations:

Y. The Work Plan follows the recommendations made by the GFCM, RCG Med&BS and RCG LPLink to sampling protocol documentation:

https://dcf-italia.cnr.it/rest/uploads/Protocollo%20DRES%202.2_PLNRDA

Sampling implementation

Recording of refusal rate:

NA

Monitoring of sampling progress within the sampling year:

NA

Data capture
<p>Means of data capture:</p> <p>Data on hauling operations will be collected through the on-board instrumentation (GPS and depth sounder). Data will be collected both on board and at laboratories by scales, measuring board, stereomicroscope and dedicated software.</p> <p>Data capture documentation:</p> <p>NA</p> <p>Quality checks documentation:</p> <p>Y</p>
Data storage
<p>National database:</p> <p>FishDataNetISHNET Portale Nazionale Dati Alieutici</p> <p>https://dcf-italia.cnr.it/web/http://150.146.207.152/web/#</p> <p>International database:</p> <p>N</p> <p>Quality checks and data validation documentation:</p> <p>NA</p>
Sample storage
<p>Storage description:</p> <p>NA.</p> <p>Sample analysis:</p> <p>DRES data shall be processed and analysed in line with the data collected according to the protocol Manuale per il campionamento DRES -Dredgers Mollusc Surveys Versione 2.2, provided at link:</p> <p>https://dcf-italia.cnr.it/rest/uploads/Protocollo%20DRES%202.2_PLNRDA</p>
Data processing
<p>Evaluation of data accuracy (bias and precision):</p> <p>Y</p> <p>Editing and imputation methods:</p> <p>Y</p> <p>Quality document associated to a dataset:</p>

N

Validation of the final dataset:

Validation of the final dataset will be done within the national DataBase.

MS : ITA

Region : Mediterranean and Black Sea

Sampling scheme identifier : SciObs water body*Diadromous (scientific)

Sampling scheme type: Diadromous (scientific)

Observation type: SciObs water body

Time period of validity : 2022-2024

Sampling scheme aimed at collecting data on recruitment, standing stock and escapement of eel in the relevant eel habitats in the Italian Eel management units (9 EMUs) as defined in accordance with Council Regulation (EC) No 1100/2007.

Description of the population

Population targeted:

Eel research surveys targets eel subpopulations (e.g., eel local stocks) in relevant habitats targets in the Italian Eel management units (9 EMUs) as defined in accordance with Council Regulation (EC) No 1100/2007, in order to collect data on recruitment, standing stock and escapement in a representative water body of each EMU. The selection of the relevant site (PSU) for the monitoring of all the three eel life stages are defined in agreement with Regional Administrations involved in Eel Management Plans under Council Regulation (EC) No 1100/2007.

Population sampled:

Data collection by scientific surveys targets all eel life stages, i.e., glass eel (for recruitment), yellow eel (for standing stock) and silver eel (for escapement).

Stratification:

Data collected will be stratified in 9 geographical lots, according to the EMU. Each lot is further identified by name of the selected water body and its habitat type, that can be RIV (river) or LGN (lagoon). Water bodies of other habitat typologies, e.g. LAK (lakes) and MLG (managed lagoons) not being identifiable as relevant water bodies for the monitoring of eel local stocks and their recruitment and escapement under natural conditions.

AR comment:**Sampling design and protocols****Sampling design description:**

PSU in the 9 EMUs are identified as the site (water body) in the EMU most significant for the monitoring of recruitment, standing stock and escapement, on the basis of its environmental conditions (connection to the sea, presence of eel) and management setting (no restocking, no impassable obstacles etc.).

Identification of the PSU is made in agreement with Regional Administrations (as Regional EMPs under Council Regulation (EC) No 1100/2007).

Given the complexity of operating in 9 different EMUs on 9 different sites for sampling campaigns on a monthly basis, sampling in 3 EMUs per year (starting in 2022) will be carried out.

Is the sampling design compliant with the 4S principle?:

NA

For eel scientific monitoring of recruitment, standing stock and escapement in transitional and inland waters, it is widely recognised at the international level that there is the need to guarantee monitoring along time of recruitment, standing stock and escapement in relevant sites (ICES; 2019, 2020a, 2020b, 2020c), at the moment focusing on the best methodology to be implemented. Given the heterogeneity of eel habitats in terms of their typology and related environmental features, standardized protocols at the moment are not agreed internationally, not even at the Regional level, but are based on the best available scientific literature (see references below). In this respect, the definitive implementation of the monitoring scheme and of collected variables and data processing in Italian EMUs will take place in the first months of 2022, within a framework of coordination with Regional Administrations occurring under the Eel Management Plans under Council Regulation (EC) No 1100/2007. Final methodological challenges will also be finally worked out based on results of the Pilot phase for WP2 Task 2.3b (I: 2017-2019, II: 2020-2021).

Regional coordination:

NA

Link to sampling design documentation:

ICES. 2021. Third Workshop on Designing an Eel Data Call (WKEELDATA3). ICES Scientific Reports. 3:50. 19 pp. <https://doi.org/10.17895/ices.pub.8140>

ICES. 2020a. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 2:85. 223 pp. <http://doi.org/10.17895/ices.pub.5982>

ICES. 2020b. Steering Committee of the Regional Fisheries Database (SCRDB; outputs from 2019 meeting). ICES Scientific Reports. 2:24. 57 pp. <http://doi.org/10.17895/ices.pub.5992>

ICES. 2020c. Workshop on the temporal migration patterns of European eel (WKEELMIGRATION). ICES Scientific Reports. 2: 25. 109 pp. <http://doi.org/10.17895/ices.pub.5993>

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

ICES. 2019. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 1:50. 177 pp. <http://doi.org/10.17895/ices.pub.5545>

ICES. 2019. The Second Workshop on Designing an Eel Data Call 2 (WKEELDATA2). ICES Scientific Reports. 1:41. 19 pp. <http://doi.org/10.17895/ices.pub.4977>

ICES. 2018. Report of the Workshop on Tools for Eel (WKTEEL), 2–6 July 2018, Rennes, France. ICES CM 2018/ACOM:49. 23 pp.

ICES. 2018. Report of the Working Group on Data Poor Diadromous Fish (WGDAM), 12–16 March 2018, ICES HQ, Copenhagen, Denmark. ICES CM 2018/EPDSG:20. 12 pp. <https://doi.org/10.17895/ices.pub.8089>

ICES. 2017. Report of the Workshop on Designing an Eel Data Call (WKEELDATA), 28 February–2 March 2017, Rennes, France. ICES CM 2017/SGIEOM:30. 38 pp.

ICES, 2012. Report of the Workshop on Eel and Salmon DCF Data (WKESDCF), 3 – 6 July 2012, ICES HQ, Copenhagen, Denmark. ICES CM / ACOM:62. 67 pp.

RCG NA NS&EA RCG Baltic 2020. Regional Coordination Group North Atlantic, North Sea & Eastern Arctic and Regional Coordination Group Baltic. 2020. Part I Report, 110 pgs. Part II Decisions and Recommendations, 7 pgs. Part III, Intersessional Subgroup (ISSG) 2019-2020 Reports, 154 pgs. (<https://datacollection.jrc.ec.europa.eu/docs/rcg>) Wilson, K., and Veneranta,

L. (Eds). 2019. Data-limited diadromous species – review of European status. ICES Cooperative Research Report No. 348. 273 pp. <http://doi.org/10.17895/ices.pub.5253>

Walker A.M., Andonegi E., Apostolaki P., Aprahamian M., Beaulaton L., Bevacqua P., Briand C., Cannas A., De Eyto E., Dekker W., De Leo G., Diaz E., Doering-Arjes P., Fladung E., Jouanin C., Lambert P., Poole R., Oeberst R. and Schiavina M. (2011). Studies and pilot projects for carrying out the Common Fisheries Policy Lot 2: Pilot projects to estimate potential and actual escapement of silver eel. European Commission Directorate-General for Maritime Affairs and Fisheries.

Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, Member State shall provide some details in the textbox.

Compliance with international recommendations:

N

Link to sampling protocol documentation:

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

ICES. 2021. Third Workshop on Designing an Eel Data Call (WKEELDATA3). ICES Scientific Reports. 3:50. 19 pp. <https://doi.org/10.17895/ices.pub.8140>

ICES. 2020. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 2:85. 223 pp. <http://doi.org/10.17895/ices.pub.5982>

ICES. 2019. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 1:50. 177 pp. <http://doi.org/10.17895/ices.pub.5545>

ICES. 2019. The Second Workshop on Designing an Eel Data Call 2 (WKEELDATA2). ICES Scientific Reports. 1:41. 19 pp. <http://doi.org/10.17895/ices.pub.4977>

ICES. 2018. Report of the Workshop on Tools for Eel (WKTEEL), 2–6 July 2018, Rennes, France. ICES CM 2018/ACOM:49. 23 pp.

ICES. 2017. Report of the Workshop on Designing an Eel Data Call (WKEELDATA), 28 February–2 March 2017, Rennes, France. ICES CM 2017/SGIEOM:30. 38 pp.

Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details on the sampling protocol in this textbox.

AR comment: Indicate any deviations.

Sampling implementation

Recording of refusal rate:

NA

Monitoring of sampling progress within the sampling year:

Sampling progress for each life stage and indicator (glass eel for recruitment, yellow eel for standing stock, silver eel for escapement) will be monitored taking into account results of sampling in a daily basis, eventually selecting a second site in the same EMU for a replicated sampling if any local constraint (hydrological, meteorological, or any other) hampers the sampling at the selected site.

Indicate how sampling allocations are adjusted (if needed) and followed-up, what are the mechanisms in place to resolve issues and adopt mitigation measures during the sampling year?

AR comment:

Data capture

Means of data capture:

Data capture for eel research surveys in relevant habitats in order to collect data on recruitment, standing stock and escapement will be carried out in the 9 EMUs. The selection of the relevant site for the monitoring of all the three eel life stages will be agreed with Regional Administrations involved in Eel Management Plans under Council Regulation (EC) No 1100/2007, possibly coincident with the site for biological sampling of catches in order to complete information for specific eel local stocks in selected sites.

Methodologies for each life stage scientific monitoring foresee the following protocol, at the moment based on results of Pilot Studies carried out in the previous years (I: 2017-2019, II: 2020-2021). Final methodological challenges be finally worked out based on results of the Pilot Study for WP2 Task 2 2020-2021.

Recruitment (glass eel stage)

In the selected water body (habitat type: lagoon or river, depending on the EMU) for 7days/month (new moon) installation overnights of 1 fyke-net along the tidal channel (lagoon) or river bank for during the migration period (4 months: November-February), and the

registration of presences (N) for each night. Gears used for recruitment monitoring are fyke nets 60-160 cm in height, with a 2-4 m leader connected to an approximately 2-4 m end with 2-3 chambers, the innermost one having a 2 mm mesh size. Abundance and biomass of glass eel are calculated as a Relative Index of recruitment (Bornarel et al., 2016; Harrison et al., 2014) expressed as Catch Per Unit of Effort ($CPUE_n = n/\text{unit of effort (UE)}/\text{day}$; $CPUE_g = g \text{ UE}/\text{day}$) i.e. daily count for each instrument.

Standing stock (yellow eel stage)

In the selected water body (habitat type: lagoon or river, depending on the EMU) installation of 1 enclosure net system (fyke nets + a boundary net arranged to enclose an area of 1 ha) (if the body water selected is a lagoon) or a fyke-net chain (row of 10 nets along the river bank, if the water body selected is a river) for 7 days/month during trophic movements period (April-July), and the daily registration of catches, (N or Weight, depending on the amount of capture) each day.

Specifically for lagoons (LGN), a novel fishing gear system aimed at assessing yellow eel density was set up based on Claus and Malte, 2015, will be used, that combines the advantages of enclosure approaches and eel-specific fishing gears (fyke nets). The external part consists of a boundary net arranged in a 100 m × 100 m square (mesh size 12 mm) to enclose an area of 1 ha. The fyke nets set in the enclosed area were 16-20 in number, 80-100 cm in height, length of 2-3 m with 2-3 chambers, the innermost one having a ranging mesh size of 7-9 mm. Full selectivity of the gear is assumed for yellow eels with lengths above 36 cm, as smaller eels can escape through the selected mesh size (Claus and Malte, 2016; Bevacqua et al., 2009). Abundance and biomass of yellow eel standing stock are calculated as a Relative Index (Bornarel et al., 2016; Harrison et al., 2014) expressed as Catch Per Unit of Effort ($CPUE_n = n/\text{unit of effort (UE)}/\text{day}$; $CPUE_g = g \text{ UE}/\text{day}$) i.e., daily count for each instrument.

Escapement (silver eel stage)

In each EMU, in the selected water body (habitat type: lagoon or river, depending on the EMU) installation of a set of fyke-nets (in front of the tidal channel if the body water selected is a lagoon, or along the river bank, if the water body selected is a river) for 7 days/month during downstream migration (October-January), and the daily registration of catches, (N or Weight, depending on the amount of capture) each day.

In detail, in continental waters (rivers), 2 rows of fyke nets have been set in chains (10 fyke nets each) parallel the banks along the river stretch, located at a distance of about 4 m from each other will be used. The fyke nets are 80-100 cm in height, length of 2 m with 2 chambers, the innermost one having an 8-9 mm mesh size. In transitional waters (coastal lagoons), the monitoring protocol foresees the setting up of two sampling stations, one per river bank arranged perpendicular to the shore by means of net barriers of length 123- 150 m, 12 mm mesh size. At the end of each net barrier, 2-3 fyke nets are installed. The fyke nets are 50- 80 cm in height, length 3-9 m, with 3 chambers, the innermost one having a mesh size 7-10 mm. Abundance and biomass of silver eel escapement are calculated as a Relative Index of

escapement (Bornarel et al., 2016; Harrison et al., 2014) expressed as Catch Per Unit of Effort (CPUE_n = n/unit of effort (UE)/day; CPUE_g = g UE/day) i.e., daily count for each instrument.

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

Acou A., Boury P., Laffaille P., Crivelli A.J., Feunteun E. 2005. Towards a standardized characterization of the potentially migrating silver European eel (*Anguilla anguilla* L.). Arch. Hydrobiol., 164, 237–255.

Bornarel, V., (2016). Stock assessment in the case of the European eel: Towards an international assessment of a Widely-distributed and fragmented population.

Claus, U., & Malte, D. (2015). A novel enclosure approach to assessing yellow eel (*Anguilla anguilla*) density in non-tidal coastal waters. Fisheries Research, 161, 57-63.

Colombo G. and Grandi G. 1996. Histological study of the development and sex differentiation of the gonad in the European eel. J. Fish Biol., 48, 493–512.

Drouineau, H., Briand, C., Lambert, P., & Beaulaton, L., (2016). GEREM (Glass Eel Recruitment Estimation Model): A model to estimate glass eel recruitment at different spatial scales. Fisheries Research, 174, 68-80.

Durif C., Dufour S. and Elie P. 2005. The silvering process of *Anguilla anguilla*: a new classification from the yellow resident to the silver migration stage. J. Fish Biol., 66, 1025–1043. ICES. 2011. Report of the Workshop on Age Reading of European and American Eel (WKAREA2), 22-24 March 2011, Bordeaux, France. ICES CM 2011/ACOM:43. 35 pp.

Harrison, A. J., Walker, A. M., Pinder, A. C., Briand, C., & Aprahamian, M. W. (2014). A review of glass eel migratory behaviour, sampling techniques and abundance estimates in estuaries: implications for assessing recruitment, local production and exploitation. Reviews in Fish Biology and Fisheries, 24(4), 967-983.

Walker A.M., Andonegi E., Apostolaki P., Aprahamian M., Beaulaton L., Bevacqua P., Briand C., Cannas A., De Eyto E., Dekker W., De Leo G., Diaz E., Doering-Arjes P., Fladung E., Jouanin C., Lambert P., Poole R., Oeberst R. and Schiavina M. (2011). Studies and pilot projects for carrying out the Common Fisheries Policy Lot 2: Pilot projects to estimate potential and actual escapement of silver eel. European Commission Directorate-General for Maritime Affairs and Fisheries.

Quality checks documentation: Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be

found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box.

N

A quality check for data collected within scientific monitoring for eel at the moment is not applicable, because the methodologies are to be discussed, checked and agreed at the national level with EMUs, and at international level primarily within the ICES/GFCM/EIFAAC WGEEL.

AR comment:

Data storage

National database:

FishDataNetPortale Nazionale Dati Alieutici

International database: Provide the name of international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.

ICES database EEL

https://mercure.eptb-vilaine.fr/shiny_dv/

Quality checks for data storage are provided by the managers of national and international databases, at the relative links

FishDataNet Portale Nazionale Dati Alieutici

<https://dcf-italia.cnr.it/web/>

ICES database EEL

https://mercure.eptb-vilaine.fr/shiny_dv/

AR comment: Indicate any deviations.

Sample storage

AR comment: Indicate any deviations.

Data processing

Evaluation of data accuracy (bias and precision):

N
Editing and imputation methods:
N
Quality document associated to a dataset: Is there a publication digital object identifier (DOI) created? Is there a document summarising the estimation process followed?
N
Validation of the final dataset: How are datasets validated (quality checked) before providing to end-user?
Data collection, sampling scheme, quality check of final datasets to be provided to national end users and international end-users will be carried out with relevant partners at national levels (EMUs Administrations, in coordination with work for Regulation 1100/2007 in ITALY, MIPAAF) and international levels (EIFAAC/ICES/GFCM WGEEL).
MS : ITA
Region : Mediterranean and Black Sea
Sampling scheme identifier : SciObsOnShore*recreational (off site surveys)
Sampling scheme type: recreational (off site surveys)
Observation type: SciObsOnShore
Time period of validity : 2022-2024
Sampling scheme for the collection of catch data for recreational eel fisheries in inland and transitional waters of Italian Eel management units (9 EMUs) as defined in accordance with Council Regulation (EC) No 1100/2007.
Description of the population

Population targeted:

Data collection for eel recreational fisheries targets eel sub-populations (e.g. eel local stocks) in the Italian Eel management units (9 EMUs) as defined in accordance with Council Regulation (EC) No 1100/2007. Eel recreational fisheries occur only in freshwaters and transitional waters of the 9 IT EMUs, recreational eel fisheries being closed since 2010 in the rest of the National water bodies (by Regional decrees following the implantation of the Italian Eel Management Plan under Regulation 1100/2007) and marine eel recreational fisheries being non-existent.

Population sampled:

Data collection will target catch data for the two eel life stages targeted by recreational fisheries in transitional and freshwaters in the 9 EMUs, any recreational fishery for glass eel being forbidden.

Stratification:

Data collected will be stratified in 9 geographical lots, according to the EMU. Each lot is further stratified according to habitat type, taking into account 3 strata of eel habitat typologies identified in the 9 EMUs, where recreational fisheries occur: RIV (river), LAK (Lake), LGN (Lagoon).

AR comment:**Sampling design and protocols****Sampling design description:**

PSU in the 9 EMUs are identified as all the sites (water body) where recreational eel fisheries in the EMU occurs.

Catch data will be collected by off-sites surveys by Scientific Observers that will carry out interviews to samples of anglers extracted from the whole licensed anglers universe, based on information provided by EMUs Administrations and their internal system of licensing and catch recording (logbooks, on-line declarations, any other). An expansion of data will be performed to evaluate the whole catch for each eel life stage (yellow eel, silver eel) at the EMU and strata level. The sampling design already in place, implemented in previous years, will be quality checked and implemented in cooperation with the EMUs Administrations. No biological samplings are foreseen, because eel recreational fisheries are too heterogeneous and scattered in inland waters, as highlighted by the Joint ICES/GFCM/EIFAAC WGEEL in 2020 and 2021 (ICES, 2020, 2021) and sampling for biological variables would not be representative of eel local stocks and would not add useful information.

SSU are not foreseen.

Is the sampling design compliant with the 4S principle?:

NA

Catch recording will be based on off-site interviews by observers, at the moment identified as the best available methodology. As said above, eel recreational fisheries are too heterogeneous and scattered in inland waters as indicated by the Joint ICES/GFCM/EIFAAC WGEEL in 2020 and 2021 (ICES, 2020, 2021), and methodology for eel recreational fisheries is not standardized yet.

Regional coordination:

NA

Link to sampling design documentation:

ICES. 2020. Working Group on Recreational Fisheries Surveys (WGRFS; outputs from 2019 meeting).

ICES Scientific Reports. 2:1. 78 pp. <http://doi.org/10.17895/ices.pub.5744>

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

ICES. 2021. Third Workshop on Designing an Eel Data Call (WKEELDATA3). ICES Scientific Reports. 3:50. 19 pp. <https://doi.org/10.17895/ices.pub.8140>

ICES. 2020. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 2:85. 223 pp. <http://doi.org/10.17895/ices.pub.5982>

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ICES. 2019. The Second Workshop on Designing an Eel Data Call 2 (WKEELDATA2). ICES Scientific Reports. 1:41. 19 pp. <http://doi.org/10.17895/ices.pub.4977>

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ICES. 2017. Report of the Workshop on Designing an Eel Data Call (WKEELDATA), 28 February–2 March 2017, Rennes, France. ICES CM 2017/SGIEOM:30. 38 pp.

RCG NA NS&EA RCG Baltic 2020. Regional Coordination Group North Atlantic, North Sea & Eastern Arctic and Regional Coordination Group Baltic. 2020. Part I Report, 110 pgs. Part II Decisions and Recommendations, 7 pgs. Part III, Intersessional Subgroup (ISSG) 2019-2020 Reports, 154 pgs. (<https://datacollection.jrc.ec.europa.eu/docs/rcg>) Wilson, K., and Veneranta, L. (Eds). 2019. Data-limited diadromous species – review of European status. ICES Cooperative Research Report No. 348. 273 pp. <http://doi.org/10.17895/ices.pub.5253>

Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, Member State shall provide some details in the textbox.

Compliance with international recommendations:

N

Link to sampling protocol documentation:

ICES. 2020. Working Group on Recreational Fisheries Surveys (WGRFS; outputs from 2019 meeting).

ICES Scientific Reports. 2:1. 78 pp. <http://doi.org/10.17895/ices.pub.5744>

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

ICES. 2021. Third Workshop on Designing an Eel Data Call (WKEELDATA3). ICES Scientific Reports. 3:50. 19 pp. <https://doi.org/10.17895/ices.pub.8140>

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ICES. 2019. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 1:50. 177 pp. <http://doi.org/10.17895/ices.pub.5545>

ICES. 2019. The Second Workshop on Designing an Eel Data Call 2 (WKEELDATA2). ICES Scientific Reports. 1:41. 19 pp. <http://doi.org/10.17895/ices.pub.4977>

ICES. 2018. Report of the Workshop on Tools for Eel (WKTEEL), 2–6 July 2018, Rennes, France. ICES CM 2018/ACOM:49. 23 pp.

ICES. 2017. Report of the Workshop on Designing an Eel Data Call (WKEELDATA), 28 February–2 March 2017, Rennes, France. ICES CM 2017/SGIEOM:30. 38 pp.

AR comment: Indicate any deviations.

Sampling implementation

Recording of refusal rate:

NA

Monitoring of sampling progress within the sampling year:

Catch recording for eel recreational fisheries will be monitored and checked by means of interactions with the EMUs Administrations, and eventually adjusted by widening the sample of anglers for interviews.

AR comment: Indicate any deviations.

Data capture

Means of data capture:

Data capture for eel recreational catches recording will be based on off-site interviews to a sample of fishermen by observers, extracted on a statistical basis for each habitat typology in each EMU.

The methodology (questionnaires, interviews, catch declarations) will be agreed in each EMU with the EMU Administration, depending on the system already in place at the local level, and further standardized for all EMUs.

Data capture foresees catch (yellow and silver eel separated), type of gear, number of gears used daily, and number of fishing days per year.

ICES. 2020. Working Group on Recreational Fisheries Surveys (WGRFS; outputs from 2019 meeting).

ICES Scientific Reports. 2:1. 78 pp. <http://doi.org/10.17895/ices.pub.5744>

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and

methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

Quality checks documentation:

N

Data quality check will be based on direct surveys on samples of fishers in each EMU

AR comment: Indicate any deviations.

Data storage

National database:

FishDataNet Portale Nazionale Dati Alieutici

<https://dcf-italia.cnr.it/web/>

ICES database EEL

https://mercure.eptb-vilaine.fr/shiny_dv/

Quality checks and data validation documentation:

Quality checks for data storage are provided by the managers of national and international databases, at the relative links

FishDataNet Portale Nazionale Dati Alieutici

<https://dcf-italia.cnr.it/web/>

ICES database EEL

https://mercure.eptb-vilaine.fr/shiny_dv/

AR comment: Indicate any deviations.

Sample storage

Storage description:

All data (questionnaires submitted, data relative to anglers census, results of expansions for catch estimates etc. photos etc.) are archived electronically in Personal Computers, with back-ups on internal servers. Storage time is indefinite and maintenance guaranteed, all samples being stored as long as possible in case of the need of checks, under the Responsibility of the Scientific Unit of the tasks.

Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for samples storage; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples

are stored under the auspices/responsibility of an international organization; if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.

Sample analysis:

AR comment:

Data processing

Evaluation of data accuracy (bias and precision):

N

Editing and imputation methods:

N

Quality document associated to a dataset:

N

Validation of the final dataset:

Data collection, sampling scheme, quality check of final datasets to be provided to national end users and international end-users will be carried out with relevant partners at national levels (EMUs Administrations, in coordination with work for Regulation 1100/2007 in ITALY, MIPAAF) and international levels (EIFAAC/ICES/GFCM WGEEL).

AR comment: Indicate any deviations.

MS : ITA

Region : Mediterranean and Black Sea

Sampling scheme identifier : Diadromous (commercial)

Sampling scheme type: Commercial by category

Observation type: SciObsOnShore

Time period of validity : 2022-2024 from when until when

Sampling scheme for the collection of catch data and biological variables of eel in the Italian Eel management units (9 EMUs) -as defined in accordance with Council Regulation (EC) No 1100/2007 – where eel commercial fisheries occur (only in freshwaters and transitional waters, marine

eel fisheries being definitively closed by the Decree of the Ministry of Agriculture and Forestry Police (MIPAAF) n. 403 of July 25th, 2019).

Description of the population

Population targeted:

Data collection for catch data and biological variables targets eel sub-populations (e.g., eel local stocks) in the Italian Eel management units (9 EMUs) as defined in accordance with Council Regulation (EC) No 1100/2007. Eel commercial inland fisheries occur only in freshwaters and transitional waters of the 9 IT EMUs, marine eel fisheries being definitively closed by the Decree of the Ministry of Agriculture and Forestry Police (MIPAAF) n. 403 of July 25th, 2019.

Sampling will target all the sites (water bodies) where catches in the 9 EMUs occurs, while sampling for biological variables will take place in the site (water body) where the most significant share of catches in the EMU occurs.

Population sampled:

Data collection will target two life stages of the eel local stocks, the yellow eel and the silver eel. The recruiting stage (glass eel) will not be sampled because no central glass eel fisheries exist, recruits being the target of scientific surveys for diadromous eel.

Stratification:

Data collected will be stratified in 9 geographical lots, according to the EMU. Each lot is further stratified according to habitat type, taking into account 4 strata of eel habitat typologies identified in the 9 EMUs, where commercial fisheries occur: RIV (river), LAK (Lake), LGN (lagoon), MLG (managed lagoon).

AR comment: Indicate any deviations.

Sampling design and protocols

Sampling design description:

PSUs in the 9 EMUs are identified as all the sites (water bodies) where catches in the EMU occurs. Identification of the PSUs relies on yearly reporting by Regional Administrations of official catch data (as Regional EMUs under Council Regulation (EC) No 1100/2007).

SSUs are the sites where sampling for biological variables will take place, and is identified as the site (water body) where the most significant share of catches in the EMU occurs. Identification of the SSUs also relies on yearly reporting by Regional Administrations of official catch data (as Regional EMUs under Council Regulation (EC) No 1100/2007).

Is the sampling design compliant with the 4S principle?:

NA

For eel sampling of commercial catches, being widely recognised at the international level that for eel local stocks there is the need to guarantee monitoring along time of the structure of selected specific local stocks (ICES; 2019, 2020a, 2020b).

Regional coordination:

NA

Link to sampling design documentation:

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

Wilson, K., and Veneranta, L. (Eds). 2019. Data-limited diadromous species – review of European status. ICES Cooperative Research Report No. 348. 273 pp. <http://doi.org/10.17895/ices.pub.5253>

ICES. 2021. Third Workshop on Designing an Eel Data Call (WKEELDATA3). ICES Scientific Reports. 3:50. 19 pp. <https://doi.org/10.17895/ices.pub.8140>

ICES. 2020. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 2:85. 223 pp. <http://doi.org/10.17895/ices.pub.5982>

ICES. 2020. Steering Committee of the Regional Fisheries Database (SCRDB; outputs from 2019 meeting).

ICES Scientific Reports. 2:24. 57 pp. <http://doi.org/10.17895/ices.pub.5992>

ICES. 2019. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 1:50. 177 pp. <http://doi.org/10.17895/ices.pub.5545>

ICES. 2019. The Second Workshop on Designing an Eel Data Call 2 (WKEELDATA2). ICES Scientific Reports. 1:41. 19 pp. <http://doi.org/10.17895/ices.pub.4977>

ICES. 2018. Report of the Workshop on Tools for Eel (WKTEEL), 2–6 July 2018, Rennes, France. ICES CM 2018/ACOM:49. 23 pp.

ICES. 2018. Report of the Working Group on Data Poor Diadromous Fish (WGDAM), 12–16 March 2018, ICES HQ, Copenhagen, Denmark. ICES CM 2018/EPDSG:20. 12 pp. <https://doi.org/10.17895/ices.pub.8089>

ICES. 2017. Report of the Workshop on Designing an Eel Data Call (WKEELDATA), 28 February–2 March 2017, Rennes, France. ICES CM 2017/SGIEOM:30. 38 pp.

RCG NA NS&EA RCG Baltic 2020. Regional Coordination Group North Atlantic, North Sea & Eastern Arctic and Regional Coordination Group Baltic. 2020. Part I Report, 110 pgs. Part II Decisions and Recommendations, 7 pgs. Part III, Intersessional Subgroup (ISSG) 2019-2020 Reports, 154 pgs. (<https://datacollection.jrc.ec.europa.eu/docs/rcg>)

Compliance with international recommendations:

Y

Link to sampling protocol documentation:

ICES. 2021. Third Workshop on Designing an Eel Data Call (WKEELDATA3). ICES Scientific Reports. 3:50. 19 pp. <https://doi.org/10.17895/ices.pub.8140>

Vehanen, T.; Piria, M.; Kubečka, J.; Skov, C.; Kelly, F.; Pokki, H.; Eskelinen, P.; Rahikainen, M.; Keskinen, T.; Artell, J.; Romakkaniemi, A.; Suić, J.; Adámek, Z.; Heimlich, R.; Chalupa, P.; Ženíšková, H.; Lyach, R.; Berg, S.; Birnie-Gauvin, K.; Jepsen, N.; Koed, A.; Pedersen, M. I.; Rasmussen, G.; Gargan, P., Roche, W. & Arlinghaus, R. 2020. Data collection systems and methodologies for the inland fisheries of Europe. FAO Fisheries and Aquaculture Technical Paper No. 649. Budapest, FAO. <https://doi.org/10.4060/ca7993en>

ICES. 2020. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 2:85. 223 pp. <http://doi.org/10.17895/ices.pub.5982>

ICES. 2019. Joint EIFAAC/ICES/GFCM Working Group on Eels (WGEEL). ICES Scientific Reports. 1:50. 177 pp. <http://doi.org/10.17895/ices.pub.5545>

ICES. 2019. The Second Workshop on Designing an Eel Data Call 2 (WKEELDATA2). ICES Scientific Reports. 1:41. 19 pp. <http://doi.org/10.17895/ices.pub.4977>

Carbonara, P., & Follesa, M. C. (2019). Handbook on fish age determination: a Mediterranean experience. General Fisheries Commission for the Mediterranean. Studies and Reviews, (98), I-179.

ICES. 2018. Report of the Workshop on Tools for Eel (WKTEEL), 2–6 July 2018, Rennes, France. ICES CM 2018/ACOM:49. 23 pp.

ICES. 2017. Report of the Workshop on Designing an Eel Data Call (WKEELDATA), 28 February–2 March 2017, Rennes, France. ICES CM 2017/SGIEOM:30. 38 pp.

AR comment: Indicate any deviations.

Sampling implementation

Recording of refusal rate:

NA

Monitoring of sampling progress within the sampling year:

Sampling progress for each life stage in each EMU will be monitored taking into account catch recording by Regional Administrations, eventually selecting a second site in the same EMU for sampling if any local constraint hampers the sampling at the selected site.

AR comment:

Data capture

Means of data capture:

Data capture for eel commercial fisheries based on direct and detailed interviews by EMUs Administration and under central coordination will allow to obtain official catch data for each EMU and relative strata. Based on this data, the site for sampling for biological variables will be identified, and biological samples will be obtained for each EMU every year, consisting of 15 yellow eels and 15 silver eels, taking a random batch of eels cumulated catches of the day or the week.

Eel life stage (yellow or silver eel) will be visually classified in the field based on the colour of the livery. Silver eels are identified using three criteria: the colour of the back and belly, presence of a well-marked lateral line (Acou et al., 2005), and eye diameter according to Pankhurst (1982).

“Weight” will be recorded every year for each EMU sample using precision scales and length measured with graduated boards.

Data capture for “Age” and “Sex” will be carried out every three years for each EMU sample (starting in 2022). Age estimation is carried out based on otolith reading following agreed standardized protocols (Capoccioni et al. 2015; Capoccioni et al., Carbonara, P., & Follesa, M. C., 2019, ICES, 2009, 2011, 2020)

Sex is assessed macroscopically whenever possible or by histological examination of gonads (Colombo and Grandi, 1996) when determination is uncertain.

Eventually, maturation stage is determined by combining gonad development assessment, Pankhurst’s (1982) ocular index (OI), which reflects changes in eye diameter during metamorphosis to the silver stage (Acou et al., 2005) and Durif’s silvering index (Durif et al., 2005).

Acou A., Boury P., Laffaille P., Crivelli A.J., Feunteun E. 2005. Towards a standardized characterization of the potentially migrating silver European eel (*Anguilla anguilla* L.). Arch. Hydrobiol., 164, 237–255.

Capoccioni, F., Leone, C., & Ciccotti E., 2015. In Handbook for fish age determination theory and practice in Italian Data Collection Framework Context. Report Del Progetto Di Ricerca:

Costituzione Di Gruppi Di Lavoro Finalizzati All'ottimizzazione Delle Metodologie d'indagine Campionarie Per La Valutazione Dello Stato Delle Risorse (Ministero Delle Politiche Agricole, Alimentari E Forestali – Direzione Pesca E Acquacoltura) - gruppo di lavoro sulla lettura dell'età dei pesci. SOCIETÀ ITALIANA DI BIOLOGIA MARINA: 210 Pp.

Carbonara, P., & Follesa, M. C. (2019). Handbook on fish age determination: a Mediterranean experience. General Fisheries Commission for the Mediterranean. Studies and Reviews, (98), I-179.ICES. 2009. Workshop on Age Reading of European and American Eel (WKAREA), 20-24 April 2009, Bordeaux, France. ICES CM 2009\ACOM: 48. 66 pp.

Colombo G. and Grandi G. 1996. Histological study of the development and sex differentiation of the gonad in the European eel. J. Fish Biol., 48, 493–512.

Durif C., Dufour S. and Elie P. 2005. The silvering process of *Anguilla anguilla*: a new classification from the yellow resident to the silver migration stage. J. Fish Biol., 66, 1025–1043.ICES. 2011. Report of the Workshop on Age Reading of European and American Eel (WKAREA2), 22-24 March 2011, Bordeaux, France. ICES CM 2011/ACOM:43. 35 pp.

ICES. 2020. Third Workshop on Age Reading of European and American Eel (WKAREA3) ICES Scientific Reports. 2:84. 34 pp. <http://doi.org/10.17895/ices.pub.7483>

ICES. 2011. Report of the Workshop on Age Reading of European and American Eel (WKAREA2), 22-24 March 2011, Bordeaux, France. ICES CM 2011/ACOM:43. 35 pp.

ICES. 2009. Workshop on Age Reading of European and American Eel (WKAREA), 20-24 April 2009, Bordeaux, France. ICES CM 2009\ACOM: 48. 66 pp

Quality checks documentation: Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box.

N

AR comment: Indicate any deviations.

Data storage

National database: Provide the name of national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.

FishDataNet Portale Nazionale Dati Alieutici

<https://dcf-italia.cnr.it/web/>**International database:** Provide the name of international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.

ICES database EEL https://mercure.eptb-vilaine.fr/shiny_dv/ GFCM DCRF Task VII-6 online platform Quality checks and data validation documentation: Quality checks for data storage are provided by the managers of national and international databases, at the relative links FishDataNet Portale Nazionale Dati Alieutici https://dcf-italia.cnr.it/web/ ICES database EEL https://mercure.eptb-vilaine.fr/shiny_dv/ GFCM DCRF Task VII-6 online platform
AR comment:
Sample storage
Storage description: All data (catches, individual biometrical parameters, age and sex individual data, photos etc.) are archived electronically in Personal Computers, with back-ups on internal servers. For biological variables samples, otoliths used for age estimations and histological preparations for sex determination are stored in laboratory archives, properly labelled in order to allocate them to corresponding year/EMU sample/date of sampling/individual. Storage time is indefinite and maintenance guaranteed, all samples being stored as long as possible in case of the need of checks, under the Responsibility of the Scientific Unit of the tasks.
AR comment:
Data processing
Evaluation of data accuracy (bias and precision): Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox. N

Editing and imputation methods:

N

Quality document associated to a dataset: Is there a publication digital object identifier (DOI) created? Is there a document summarising the estimation process followed?

N

Validation of the final dataset: How are datasets validated (quality checked) before providing to end-user?

Data collection, sampling scheme, quality check of final datasets to be provided to national end users and international end-users will be carried out with relevant partners at national levels (EMUs Administrations, in coordination with work for Regulation 1100/2007 in ITALY, MIPAAF) and international levels (EIFAAC/ICES/GFCM WGEEL, GFCM Secretariat).

MS: ITA
Region: Mediterranean and Black Sea
Sampling scheme identifier: SelfOnShore_AtSea_recreational
Sampling scheme type: recreational (off site surveys)
Observation type: SelfOnShore (triennial frequency) – SelfAtSea (annual frequency)
Time period of validity: from 2022 until 2024
<p>Short description (max 100 words): <i>e.g. sampling scheme aiming at collecting length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French in French, Portuguese, and Spanish).</i></p> <p>The project considers:</p> <ol style="list-style-type: none"> 1. <u>for species identified in the GFCM Report</u> (WGRF 2021 appendix 3 and 5) (still to. be definitively.set): sample telephone survey (triennial frequency) to collect information about recreational fishermen and to extract a panel to be involved in a subsequent logbook survey phase; 2. <u>for large pelagic species</u>, according to the ICCAT list of elasmobranchs and highly migratory species: annual census of the boats as to estimate the universe of anglers and to extract a panel to be involved in a subsequent logbook survey phase. The official register of catches for bluefin tuna and swordfish will also be considered. 3. In both cases: <ol style="list-style-type: none"> a. logbook survey (annual frequency) on the panel to integrate and validate the data acquired (es: area, type of fishing, etc.) and to provide additional information on catch size per species (retained or released); b. extrapolation data and estimate of total number of fisherman and catch per species.
Description of the population

Population targeted: Specify the primary sampling units (PSU), e.g. all national port*days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area.

1. for species identified in the GFCM Report:

- a. the primary sampling units (PSU) are the national recreational fishermen older than 18 years. Italian non-residents in Italy and minors are excluded;
- b. main target species concern the “species of common interest with the professional fishing” as according to the ongoing National Programs. A final list, including other species as well, will be definitively fixed during 2022 after the end of the pilot studies currently still ongoing and the following consultations;
- c. main survey area is whole national area.

2. for large pelagic species:

- a. as this type of fishing can only be practised by boat, the primary sampling units (PSU) are the recreational fishing boats present in national ports;
- b. main target species concern the ICCAT list of elasmobranchs and highly migratory species;
- c. main survey area is whole national area.

Population sampled: Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason to explain, e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends. For research surveys at sea describe target species in single-species surveys or ecosystem component (e.g. demersal, pelagic) in multispecies surveys.

1. for species identified in the GFCM Report: A target sample size to obtain a sampling error level included between $\pm 3\%$ -5% will be fixed; the sampled population will be defined according to a proportional distribution;
2. for large pelagic species: sampled population will be represented by fishing boats that practice recreational fishing activities in all touristic ports throughout the year. They will be defined using also data acquired by remote sensing. In this case the observations will be made on ports selected with reasoned methods.

Stratification: Explain the logic taken to stratify the population and the number of strata generated, e.g. population stratified in 3 geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.

In both cases, the population will be stratified on a geographical criterion with only one stratum with 15 lots (coastal regions). Non-coastal regions are excluded, and will be eventually estimated.

1. for species identified in the GFCM Report: 70% of the interviews will be done in coastal municipalities and 30% in non-coastal municipalities;

AR comment: Indicate any deviations.

Sampling design and protocols

Sampling design description: Describe how the sampling allocation is defined; how PSU and SSU are selected for sampling; indicate for which catch fraction the sampling scheme applies.

1. for species identified in the GFCM Report: will be used a probability sampling according to a stratified random sampling criterium without replacement;
2. for large pelagic species: probability sampling according to a random sampling criterium without replacement.

Is the sampling design compliant with the 4S principle? Y/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)

NA

Regional coordination: Indicate if the sampling design and protocols were developed as part of a regional or multi-lateral agreement, and if yes, refer to the agreement (table 1.3) and list all MS participating.

N

Link to sampling design documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, Member State shall provide some details in the textbox.

- ICES. 2013. *Report of the ICES Working Group on Recreational Fisheries Surveys 2013 (WGRFS), 22-26 April 2013, Esporles, Spain. ICES CM 2013/ACOM:23. 49 pp.* - <http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2013/WGRFS%2013/WGRFS%20Report%202013.pdf>
 - Grati, F., Carlson, A., Carpentieri, P. & Cerri, J. 2021. *Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea. FAO Fisheries and Aquaculture Technical Paper No. 669. Rome, FAO.* <https://doi.org/10.4060/cb5403en>
1. for species identified in the GFCM Report:
 - a. Italian case study. In: Final report of the RCG-MED&BS meeting 2021 – Workshop on recreational fishery. 8-9 March 2021 and 9 April 2021 (follow-up meeting).
 2. for large pelagic species:
 - a. Pilot Study Report on Tuna sport fishing activity in Italy - Di Natale A., et al. - Col. Vol. Sci. Pap. ICCAT, 58(4): 1360-1371 (2005).

Compliance with international recommendations: Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text and should be available upon request for the evaluators.

Y.

Link to sampling protocol documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details on the sampling protocol in this textbox.

- ICES. 2013. *Report of the ICES Working Group on Recreational Fisheries Surveys 2013 (WGRFS), 22-26 April 2013, Esporles, Spain. ICES CM 2013/ACOM:23. 49 pp.* - <http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2013/WGRFS%2013/WGRFS%20Report%202013.pdf>
- Grati, F., Carlson, A., Carpentieri, P. & Cerri, J. 2021. *Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea. FAO Fisheries and Aquaculture Technical Paper No. 669. Rome, FAO.* <https://doi.org/10.4060/cb5403en>

AR comment: Indicate any deviations.

Sampling implementation

Recording of refusal rate: Indicate 'Y' (yes) or 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available.

N. In both cases: documentation could be available at the end of pilot survey.

Monitoring of sampling progress within the sampling year: Indicate how sampling allocations are adjusted (if needed) and followed-up, what are the mechanisms in place to resolve issues and adopt mitigation measures during the sampling year?

NA

AR comment: Indicate any deviations.

Data capture
<p>Means of data capture: short description (+ photo optionally). Indicate what the means for collecting the data are, e.g. scales, measuring board, dedicated software, etc.</p> <p>In both cases the means for collecting the data are represented by paper logbooks and computer storage for data processing.</p> <p>Data capture documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture means etc.) exists, provide some details in the textbox.</p> <ul style="list-style-type: none"> • Grati, F., Carlson, A., Carpentieri, P. & Cerri, J. 2021. <i>Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea</i>. FAO Fisheries and Aquaculture Technical Paper No. 669. Rome, FAO. https://doi.org/10.4060/cb5403en <p>Quality checks documentation: Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box.</p> <ul style="list-style-type: none"> • ICES. 2013. <i>Report of the ICES Working Group on Recreational Fisheries Surveys 2013 (WGRFS), 22-26 April 2013, Esporles, Spain</i>. ICES CM 2013/ACOM:23. 49 pp. - http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2013/WGRFS%202013/WGRFS%20Report%202013.pdf
AR comment: Indicate any deviations.
Data storage
<p>National database: Provide the name of national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.</p> <p>Y. Register of fishermen of the Ministry of Agricultural, Food and Forestry Policies (Min.Decr. 6 Dec 2010). Availability by the Ministry is still. subject to possible limitations.</p> <p>International database: Provide the name of international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.</p> <p>NA</p> <p>Quality checks and data validation documentation: Provide link to webpage where the documentation can be found. Otherwise, provide some details in the text box.</p> <p>NA</p>
AR comment: Indicate any deviations.
Sample storage
<p>Storage description: Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for samples storage; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples are stored under the auspices/responsibility of an international organization; if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.</p>

Sample analysis: Provide a brief description or the references to documents, including link to webpages (e.g. age reading manuals, EGs reports and protocols) if adequate, where information on the processing of the samples is provided.

All data (questionnaires submitted, data relative to angler's census, results of expansions for catch estimates etc. photos etc.) are archived electronically in Personal Computers, with back-ups on internal servers. Storage time is indefinite, and maintenance guaranteed, all samples being stored as long as possible in case of the need of checks, under the Responsibility of the Scientific Unit of the tasks.

AR comment: Indicate any deviations.

Data processing

Evaluation of data accuracy (bias and precision): Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox.

N. In both cases: documentation could be available at the end of pilot survey.

Editing and imputation methods: Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the editing and imputation methods exists, provide some details in the textbox.

N. In both cases: documentation could be available at the end of pilot survey.

Quality document associated to a dataset: Is there a publication digital object identifier (DOI) created? Is there a document summarising the estimation process followed?

N. In both cases: documentation could be available at the end of pilot survey.

Validation of the final dataset: How are datasets validated (quality checked) before providing to end-user?

N. In both cases: documentation could be available at the end of pilot survey.

AR comment: Indicate any deviations.

Sector name(s): Fishing activity variables; *Article 5(2)(c), Article 6(3)(a), (b) and (c) of the Regulation 2017/1004 and Chapter II section 3 of the EU MAP Delegated Decision annex.*

Sampling scheme: PPS

Variables: Data on the activity of Union fishing vessels within and outside Union waters

Supra region(s): Mediterranean Sea and Black Sea

Survey planning for fleet < 10 meters (exempt from regulation control)

Provide a short description of the population to which the sampling scheme applies, e.g. 'less active vessels using passive gears'.

Data sources will depend on the different types of data collection that will be used to collect the variables. In particular:

- The Fleet Register will be used for capacity: number of vessels, mean LOA of vessels, GT, kW, Vessel age.
- Ad hoc electronic questionnaires will be used to collect the variables listed in table 6 of delegated decision 1167/2021, from the sample vessels selected by means of a specific sampling plan.

Survey design and strategy

The sample unit is the single vessel and this unit is selected from the Fleet Register, which also represents the frame population. The sampling is of a stratified nature as fishing vessels of the fleet are divided into homogenous groups (stratum) based on suitable variables: geographical (NUTS2), technical (fishing technique) and dimensional (LOA class).

Information on the prevalent fishing technique come from information provided by the detection network selected for monitoring. However, a large share of the fleet < 10 meters, uses more passive tools, so it is classified as: ***Vessels using Polyvalent "passive" gears only.***

The optimum sample number per stratum is defined according to Bethel's procedure (1989). The vessels are selected using PPS methodology (Probability Proportional to Size) by applying the algorithm of HanuravVijayan.

The multivariate allocation method is implemented in the MAUSS-R v.1.1, software developed at ISTAT as described in

https://www.istat.it/it/files/2011/02/user_and_methodological_manual.pdf

Following the random extraction of the boats to be sampled, based on the stratum, the list is sent to the network of data collectors. The data collector contacts the shipowners in his area and notifies the inclusion in the sample survey to define a meeting plan and ask for consent to the use of data in accordance with the privacy policy.

Periodically, at least once a year, training courses are organised for the data collectors to update on possible software developments and also to improve their knowledge on the identification of fish species. In this latter case, the expertise of marine biologist constantly involved in surveys on the evaluation of fisheries resources, is used.

The calculation of the coefficient of variation for the variables of the sample survey is based on the algorithm programmed in R environment, in which the CV is estimated on the basis of the weights and probability of inclusion of the first order (or probability of inclusion in the sample) and second order (simultaneous presence of i and j units in the sample), using the algorithm of Hanurav-Vijayan, which defines a series of steps to carry out the extraction of a pre-set sample number (n), without replacement, and with probability of inclusion in the sample for the single non-uniform units, with respect to sampling with variable probability (CPV) or PPS (Probability proportional to size) or π PS (inclusion probability proportional to size).

Estimation design

Describe method of calculating population estimate from sample.
 Describe method of calculating derived data, e.g. imputed values.
 Describe treatment of non-responses.

The application of MAUSS-R for a specific target variable is provided in excel files using the MAUSS.R software. This Software requires that the user provides input data related to the characteristics of the population under investigation, to the variables of interest for the estimates, together with the constraints on the expected sampling error of the estimates.

As output, the system produces the sample size per stratum, the expected sampling errors of all estimates of interest and useful information to evaluate the solution found. The input information must be provided to the software in two separate data files:

1. the first one contains the stratification of the population, with the number of units within each stratum, the indication of the domains of estimate and some estimates of the intensity and variability of the phenomena of interest;
2. the second one contains the constraints on sampling errors, specified for each variable of interest and each type of domain.

In the present case, the *first file* provides information for each stratum (i.e. Liguria-PGP-0006 meters) on:

- Number of units in the frame population (fleet register);
- Average sample values for the variables: the landings and earnings of the species most representative of the national production, which form more than 70% of the total, were considered (usually between 25 and 30 species);
- standard deviation of the sampling values (landings and earnings);
- The *second file* contains the constraints on sampling errors (usually between 3 and 4%).

The output of the software is the sample size per stratum. Using this tool the user is able to make the necessary adjustments to achieve the desired sample size or, conversely, to achieve the desired expected precision on target estimates.

Estimate of totals and calculation of relative sampling errors

For each variable the estimate of the total is obtained using the Horvitz-Thompson estimator:

$\hat{Y}_h = \sum_{i=1}^{n_h} \frac{y_{hi}}{\pi_{(h)i}}$, where h is the stratum index and i indicates the sampling unit; obviously, by

summing all the strata, the estimate of the total of the variable Y is obtained:

$$\hat{Y} = \sum_{h=1}^H \hat{Y}_h = \sum_{h=1}^H \sum_{i=1}^{n_h} \frac{y_{hi}}{\pi_{(h)i}}.$$

The estimate of the average, in analogy with the estimate of the totals, will be given by

$\hat{\bar{Y}}_h = \frac{1}{N_h} \sum_{i=1}^{n_h} \frac{y_{hi}}{\pi_{(h)i}}$, for the single stratum h, by $\hat{\bar{Y}} = \frac{1}{N} \sum_{h=1}^H N_h \hat{\bar{Y}}_h = \frac{1}{N} \sum_{h=1}^H \sum_{i=1}^{n_h} \frac{y_{hi}}{\pi_{(h)i}} = \frac{\hat{Y}}{N}$ for the

total of the variable Y.

For the estimate of the variance of the total the Sen-Yates-Grundy formula is used:

$$\hat{\sigma}^2(\hat{Y}_h) = \sum_{i=1}^{n_h} \sum_{j>i}^{n_h} \left(\frac{\pi_{(h)i} \pi_{(h)j}}{\pi_{(h)ij}} - 1 \right) \left(\frac{y_{hi}}{\pi_{(h)i}} - \frac{y_{hj}}{\pi_{(h)j}} \right)^2, \text{ for the single stratum } h, \text{ while, having}$$

obtained the sample of H independent selection in each stratum, the total variance is obtained from the sum of the variances from within each single stratum:

$$\hat{\sigma}^2(\hat{Y}) = \sum_{h=1}^H \hat{\sigma}^2(\hat{Y}_h) = \sum_{h=1}^H \sum_{i=1}^{n_h} \sum_{j>i}^{n_h} \left(\frac{\pi_{(h)i} \pi_{(h)j}}{\pi_{(h)ij}} - 1 \right) \left(\frac{y_{hi}}{\pi_{(h)i}} - \frac{y_{hj}}{\pi_{(h)j}} \right)^2.$$

The relationship between the estimate of the standard deviation of the total and the estimate of the total itself, provides the estimate of the sampling error committed ($\hat{\sigma}(\hat{Y}_h)/\hat{Y}_h$ or $\hat{\sigma}(\hat{Y})/\hat{Y}$ depending on whether or not reference is made to the single stratum).

For the estimate of the variance of the population relative to each stratum the formula of Chaudhuri is used:

$$\hat{\sigma}_h^2 = \frac{1}{2N_h^2} \sum_{i \neq j}^{n_h} \frac{(y_{hi} - y_{hj})^2}{\pi_{(h)ij}} = \frac{1}{N^2} \sum_{i=1}^{n_h} \sum_{j>i}^{n_h} \frac{(y_{hi} - y_{hj})^2}{\pi_{(h)ij}}.$$

This last value can be used as an input parameter for the procedure of Bethel.

Error checks

Describe potential errors and how and where in the process these are detected, avoided or eliminated, e.g. data duplication, double counting, respondent error, upload error, processing error, etc.

Data are collected using a web based questionnaire developed to carry out the survey. The software is available on a web platform to facilitate the compilation of the survey by the data collectors. The quality control of sample data consists of the following steps:

- Training on the data collector,
- control on the field,
- Statistical and consistency checks of the sample data,
- Statistical analysis through specific tool developed for the sample survey of the effort and landings data of the fishing fleet.

The calculation of inclusion probabilities, or expansion factors, was obtained in the environment of programming R. The sample design of the was set assuming that the units were extracted following the PPS (Probability Proportional to Size) methodology.

Non Sampling errors

Errors due to factors other than sampling are called non-sampling errors.

Sample data are subjected to control and correction procedures in order to guarantee the highest quality results. The control is divided into three steps.

1. A first series of checks is carried out automatically by the Software when data are entered by the data collector. This is essentially a consistency check on raw data in order to verify the integrity of the file to be transmitted and avoid duplications or macroscopic errors due,

for example, the incorrect insertion by data collector (typing errors). Other checks foreseen at this stage concern the compliance of the data with respect to the context, for example:

- congruence between days of gear use and fishing days;
- compatibility of the gear dimensions;
- presence of prices euro/kg <0.1 or $> € 1000$;
- existence of prices and revenues set at 0 coinciding with landing > 0 .

2. The second set of checks are carried out using a software that interacts with the database. The main checks can be listed as follows:

- price by species;
- association gear / species, métier;
- activity level by stratum based on historical series;
- trend of the daily yield by stratum based on historical series;
- trend of the cpue by stratum based on historical series.

When anomalous data and outlier data are detected, data are “frozen” and pending verification with possible correction. Decision on data intervenes after internal decision of the staff or by contacting the data collector to confirm or correct the data.

3. The last step concerns checking and consolidating data through the estimate of missing data and can be carried out:

- by using other analogous information present in the database for the same period. Due to the intrinsic seasonality of the sector, it is preferred to refer to the same month of the previous year,
- on the basis of the values observed in the time series.

The missing data estimation process is based on specific rules and priorities that take into account the stratum of the vessel to be estimated.

These estimates also use the benchmark series determined by the ARIMA model.

Some of the parameters for measurement of the quality of statistical processes

Relevance

All the requests and needs of both administrative and scientific data will be guaranteed and all requests will be fulfilled.

Accuracy and reliability

As described in the methodology reported previously, the sampling is based on the Bethel algorithm. Of course, the sample size find a limit in the budget. The error coefficient is set at 3%/-5%.

Timeliness and punctuality

The delivery of the data will take place according to the following timing:

- by 30/09 year n: data I quarter year n
- by 31/12 year n: data II quarter year n
- by 30/03 year n + 1: data III quarter of the year n
- by 30/04 year n + 1: data fourth quarter year n.

Coherence and comparability

The comparability over time is assured, with time series since 2004 without breaks.

Data storage and documentation

Describe how the data are stored.

The information is collected day by day and digitized on a weekly basis. The data collectors transmit the data through a web application that allows the data to be inserted into the database with subsequent control processing using specific procedures. The web application is responsive, allowing data collectors to operate both from mobile and by PC. The information will be stored in a MySQL database and processed through procedures stored within the database. The software that interacts with the database has been created using the following technologies: C#, ASP.NET Core, Bootstrap, Javascript, HTML, CSS.

Provide a link to the webpage where additional methodological documentation can be found, if any.

Revision

Describe the frequency of the methodology review e.g. revision of segmentation, survey method per segment, per variable, etc.

Effort and productions variables will be collected every years starting from 2022 and the review of the sampling plan will be annual.

Confidentiality

Are procedures for confidential data handling in place and documented?

Are protocols to enforce confidentiality between DCF partners in place and documented?

Are protocols to enforce confidentiality with external users in place and documented?

Are there any issues with publication of data due to confidentiality reasons? Provide an explanation.

For the purpose of compliance with the privacy rules, the reference to the sample unit is encrypted and the provision of data will take place only in aggregate form. At the moment there are no provisions for the drafting of documents on the protocols and procedures relating to confidentiality and privacy measures.

Survey Specifications

‘Sector name’ refers to Fishing Activity Variables

‘Variables’ refer to Tables 6 of the EU MAP Delegated Decision annex.

ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC DATA SAMPLING SCHEME

The quality report fulfils Article 6 (3) (d) of Regulation (EU) 2017/1004. This document is intended to specify data to be collected under Chapter II, points 3, 5, 6, and 7 of the Delegated Decision annex: 'Socioeconomic data on fisheries, aquaculture and any complementary data collection of fishing activity and fish processing'. Use this annex to describe quality aspects of the data collection process (design, sampling implementation, data capture, data storage and data processing etc.). The annex should be filled for each sampling scheme. Where applicable, use the handbook on sampling design (Deliverable 2.1 from MARE/2016/22 SECFISH study), available on the DCF website.

Survey Specifications
<p><i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection for fishing activities and processing, as in the EU MAP Delegated Decision annex.</i></p> <p><i>'Sampling scheme' refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i></p> <p><i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i></p> <p><i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions, put 'All supra regions'.</i></p>
Sector name(s): Socioeconomic data on fisheries
Sampling scheme: PPS
Variables: Data on the activity of Union fishing vessels within and outside Union waters
Supra region(s): Mediterranean Sea and Black Sea
Survey planning
<p>Provide a short description of the population to which the sampling scheme applies, e.g. 'less active vessels using passive gears'.</p> <p>Data sources will depend on the different types of data collection that will be used to collect the variables. In particular:</p> <ul style="list-style-type: none"> - The Fleet Register will be used for the number of fishing enterprises and for variables related to the fleet (number of vessels, mean LOA of vessels, vessel's tonnage, etc.) - Fleet register and ad hoc questionnaires will be used for estimating consumption of fixed capital and value of physical capital - Accounts will be used for financial position - Official administrative records will be used for reporting operating subsidies and subsidies on investments - Ad hoc electronic questionnaires will be used to collect the rest of the variables listed in table 5A of EUMAP from the sample units of the survey described in paragraph. <p>The sample unit is the single vessel and this unit is selected from the Vessel Register, which also represents the frame population. The sampling is of a stratified nature in that the fishing vessels of the fleet are divided into homogenous groups based on suitable variables (geographical, technical and dimensional). Information on the prevalent fishing activity</p>

(stratification variable 2) come from field surveys carried out periodically (quarterly). This survey involves the vessels in the fleet register with LoA less than 10 meters. The optimum sample number per stratum is defined according to Bethel's procedure (1989), the vessels are selected using PPS methodology (Probability Proportional to Size) by applying the algorithm of Hanurav-Vijayan. The multivariate allocation method is implemented in the MAUSS-R software developed at ISTAT as described in https://www.istat.it/it/files/2011/02/user_and_methodological_manual.pdf

Survey design and strategy

List data sources, e.g. interviews, registers, log books, sales notes, VMS, financial accounts, etc.
Describe how the sample sizes were determined.
Describe survey methods and distribution, e.g. questionnaire forms by post, by email, on website, by phone, access to other datasets, etc.
Describe the role of auxiliary information, if any, in the strategy, e.g. for validation, cross referencing, as a fall-back data source, etc.

The calculation of the coefficient of variation for the variables of the sample survey is based on the algorithm programmed in R environment, in which the CV is estimated on the basis of the weights and probability of inclusion of the first order (or probability of inclusion in the sample) and second order (simultaneous presence of *i* and *j* units in the sample), using the algorithm of Hanurav-Vijayan, which defines a series of steps to carry out the extraction of a pre-set sample number (*n*), without replacement, and with probability of inclusion in the sample for the single non-uniform units, with respect to sampling with variable probability (CPV) or PPS (Probability proportional to size) or π PS (inclusion probability proportional to size).

Estimation design

Describe method of calculating population estimate from sample.
Describe method of calculating derived data, e.g. imputed values.
Describe treatment of non-responses.

The application of MAUSS-R for a specific target variable is provided in excel files using the MAUSS.R software.

The *first file* provides information on:

- Stratum identified;
- Number of units in the frame population;
- Average sample values for the variables "fuel costs" and "labour costs";
- standard deviation of the sampling values;
- The fieldwork costs in the stratum (cost per each interview);

The *second file* contains the constraints on sampling errors).

The *third file* contains the output of the software. The system produces as output the sample size per stratum. Using this tool the user is able to make the necessary adjustments to achieve the desired sample size or, conversely, to achieve the desired expected precision on target estimates.

Error checks

Describe potential errors and how and where in the process these are detected, avoided or eliminated, e.g. data duplication, double counting, respondent error, upload error, processing error, etc.

Data are collected using a web based questionnaire developed to carry out the survey. The software is available on a web platform to facilitate the compilation of the survey by the data collectors (NICO). The quality control of sample data consists of the following steps:

- Training on the data collector,
- control on the field,
- Statistical and consistency checks of the sample data,
- Statistical analysis through NICODA, an IT tool developed for the sample survey of the economic data of the fishing fleet.

The calculation of inclusion probabilities, or expansion factors, was obtained in the environment of programming R. In particular, the "Survey" and "Sampling" packages were used. The sample design of the "Survey" package was set assuming that the units were extracted following the PPS (Probability Proportional to Size) methodology.

The process of quality control of the final estimates allows the identification anomalous values (outliers). This activity is carried out through interviews with sector operators, use of auxiliary information or subjective knowledge on the sector and statistical analysis of final estimates on the basis of the historical time series. The localization of outliers ("outliers") is based on the definition of acceptance intervals outside of which a statistical unit is considered anomalous and then subjected to control and, eventually, to correction.

Data storage and documentation

Describe how the data are stored.

Provide a link to the webpage where additional methodological documentation can be found, if any.

The Italian data base on DCF data is at:

<https://www.politicheagricole.it>

Revision

Describe the frequency of the methodology review e.g. revision of segmentation, survey method per segment, per variable, etc.

Social variables will be collected every three years starting from 2022

Confidentiality

Are procedures for confidential data handling in place and documented?

Are protocols to enforce confidentiality between DCF partners in place and documented?

Are protocols to enforce confidentiality with external users in place and documented?

Are there any issues with publication of data due to confidentiality reasons? Provide an explanation.

Survey Specifications

‘Sector name’ refers to socio economic data on fisheries, aquaculture and any complementary data collection for fishing activities and processing, as in the EU MAP Delegated Decision annex.

<p>‘Sampling scheme’ refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</p> <p>‘Variables’ refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</p> <p>‘Supra region’ refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions, put ‘All supra regions’.</p>
Sector name(s): Socioeconomic data on aquaculture
Sampling scheme: PPS
<p>Variables:</p> <p>Socioeconomic and environmental data on aquaculture</p>
Supra region(s): Mediterranean Sea and Black Sea
Survey planning
<p>Provide a short description of the population to which the sampling scheme applies, e.g. ‘less active vessels using passive gears’.</p> <p>Economic data will be collected for the aquaculture sector as defined by EU Reg. 1380/13 and the population will be defined according to EUMAP (enterprises whose primary activity is defined according to the European classification of economic activities NACE (1) codes 03.21 and 03.22 and who operate for profit).</p> <p>The sample frame and the allocation scheme will be derived from the Eurostat survey implemented according to REG CE n. 762/2008.</p>
Survey design and strategy
<p>List data sources, e.g. interviews, registers, log books, sales notes, VMS, financial accounts, etc.</p> <p>Describe how the sample sizes were determined.</p> <p>Describe survey methods and distribution, e.g. questionnaire forms by post, by email, on website, by phone, access to other datasets, etc.</p> <p>Describe the role of auxiliary information, if any, in the strategy, e.g. for validation, cross referencing, as a fall-back data source, etc.</p> <p>The optimum sample number per stratum is defined according to Bethel’s procedure, that is a mathematical algorithm to achieve the optimum sample allocation in a multivariate sample survey. Information will be collected through the choice of a representative sample per single productive segment, with a random selection. Once selected the firm sample per productive segment it will also be possible to substitute a single firm if necessary.</p> <p>No social and economic data on aquaculture will be collected for species accounting for less than 10 % of the Italian aquaculture production by volume and value.</p>
Estimation design
<p>Describe method of calculating population estimate from sample.</p> <p>Describe method of calculating derived data, e.g. imputed values.</p> <p>Describe treatment of non-responses.</p>

<p>To obtain the estimates of the totals per stratum, the Horvitz-Thompson formula will be used, derived for the particular case of the simple random sampling without replacement.</p> <p>According to this particular estimator, the variance and the CV will be calculated to evaluate the precision level.</p>
<p>Error checks</p>
<p>Describe potential errors and how and where in the process these are detected, avoided or eliminated, e.g. data duplication, double counting, respondent error, upload error, processing error, etc.</p> <p>Accuracy indicators will be calculated to provide information on the quality of the collected data, for each variable. In particular, information on data quality will be given in terms of target precision levels and coverage rates. The estimation of the variance for the calculation of the CV will be also provided. The phase of controlling and correcting data consists in identifying and treating errors present in the primary data, in the aim of guaranteeing final results with specified levels of quality.</p>
<p>Data storage and documentation</p>
<p>Describe how the data are stored.</p> <p>Provide a link to the webpage where additional methodological documentation can be found, if any.</p> <p>The Italian data base on DCF data is at:</p> <p>https://www.politicheagricole.it</p>
<p>Revision</p>
<p>Describe the frequency of the methodology review e.g. revision of segmentation, survey method per segment, per variable, etc.</p>
<p>Confidentiality</p>
<p>Are procedures for confidential data handling in place and documented?</p> <p>Are protocols to enforce confidentiality between DCF partners in place and documented?</p> <p>Are protocols to enforce confidentiality with external users in place and documented?</p> <p>Are there any issues with publication of data due to confidentiality reasons? Provide an explanation.</p>
<p>Sector name(s): Socioeconomic data for processing</p>
<p>Sampling scheme: PPS</p>
<p>Variables: All variables listed in Table 7.1 Processing SocEcon of the Italian Work Plan 2022-2024</p>

Supra region(s): Mediterranean Sea and Black Sea
Survey planning
<p>Provide a short description of the population to which the sampling scheme applies, e.g. 'less active vessels using passive gears'.</p> <p>The population covers enterprises whose main (primary) or non-main (secondary) activity is defined according to the Eurostat definition under NACE Code 10.20: 'products'..</p>
Survey design and strategy
<p>List data sources, e.g. interviews, registers, log books, sales notes, VMS, financial accounts, etc. Describe how the sample sizes were determined.</p> <p>Describe survey methods and distribution, e.g. questionnaire forms by post, by email, on website, by phone, access to other datasets, etc.</p> <p>Describe the role of auxiliary information, if any, in the strategy, e.g. for validation, cross referencing, as a fall-back data source, etc.</p> <p>Economic data for both the main and non-main enterprises will be collected through the implementation of a sampling survey, trying to ensure a 40% coverage as a minimum. The main data sources will be enterprises' registers and the official balance sheets of these companies for the income and costs data. Subsidies on investments will be collected by using the main administrative sources (e.g. funds allocated under EMFF).</p> <p>As far as the social data related to employment, data will be collected for the whole sector every three years. The main data sources (e.g. labour registers, ad hoc questionnaires and ISTAT data) will be cross-checked and used for providing the variable listed under Table 7.1 Processing SocEcon</p> <p>The main economic variables (e.g. turnover and number of enterprise) will be collected also for enterprises exerting the fish processing activity as secondary activity. The main data sources will be enterprises' register for the number and balance sheets and interviews for turnover attributed to fish processing activity.</p> <p>The national program foresees the collection of data on raw material in weight, by species and origin, for the whole sector. Data will be collected by mean of questionnaires and interviews submitted to selected industries (according to the representativeness) every three years starting in 2018. Meetings with the industry representatives will help to select industries and collect data. Lack of responses from the sector will be faced by adopting appropriate estimation methodologies in line with the SECFISH project and STECF most recent reports.</p>
Estimation design
<p>Describe method of calculating population estimate from sample.</p> <p>Describe method of calculating derived data, e.g. imputed values.</p> <p>Describe treatment of non-responses.</p> <p>For economic and social variable collected through through sample survey standard statistic parameters will be applied to raise the sampling values to the overall population.</p> <p>For the social variables and the raw material data on volume the procedures to estimate the totals will depend on the results of data availability.</p>
Error checks
<p>Describe potential errors and how and where in the process these are detected, avoided or eliminated, e.g. data duplication, double counting, respondent error, upload error, processing error, etc.</p>

For data obtained by estimation on national registers, large errors are not expected.
The quality of data collected by mean of ad-hoc survey will be ensured by applying sound statistical approaches and providing data on coverage rates and coefficient of variation.

Data storage and documentation

Describe how the data are stored.
Provide a link to the webpage where additional methodological documentation can be found, if any.

Methodological documents and protocols are available in the national web site for the Data Collection Framework, <https://dcf-italia.cnr.it/web/>

Revision

Describe the frequency of the methodology review e.g. revision of segmentation, survey method per segment, per variable, etc.

Not applicable

Confidentiality

Are procedures for confidential data handling in place and documented?
Are protocols to enforce confidentiality between DCF partners in place and documented?
Are protocols to enforce confidentiality with external users in place and documented?
Are there any issues with publication of data due to confidentiality reasons? Provide an explanation.