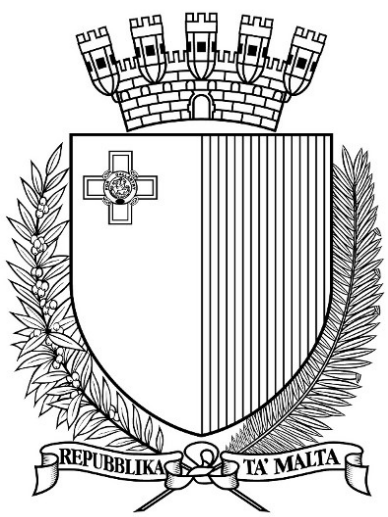
Department of Fisheries and Aquaculture

Ministry for Agriculture, Fisheries, Food and Animal Rights



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) 2021/…

laying down rules on the format for the submission of work plans and annual reports for data collection in the fisheries and aquaculture sectors

Maritime and Fisheries Operational Programme 2014-2020
Project part-financed by the European Union
European Maritime and Fisheries Fund
Co-financing rate: 80% European Union Funds; 20% National Funds

Investing in sustainable fisheries and aquaculture

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

2022-2024

Version 4 – 2021

Malta, November 2021

CONTENTS

SECTION 1: GENERAL INFORMATION 4
Data collection framework at national level 4
Text Box 1b: Other data collection activities 6
SECTION 2: BIOLOGICAL DATA 7
Text Box 2.4: Recreational fisheries 7
Text Box 2.5: Sampling plan description for biological data 8
Text Box 2.6: Research surveys at sea 11
SECTION 3: FISHING ACTIVITY DATA 13
Text Box 3.1: Fishing activity variables data collection strategy 13
SECTION 4: IMPACT OF FISHERIES ON MARINE BIOLOGICAL RESOURCES 14
Text Box 4.2: Incidental catches of sensitive species 14
Text Box 4.3: Fisheries impact on marine habitats 15
SECTION 5: ECONOMIC AND SOCIAL DATA IN FISHERIES 17
Text Box 5.2: Economic and social variables for fisheries data collection 17
SECTION 6: ECONOMIC AND SOCIAL DATA IN AQUACULTURE 20
Text Box 6.1: Economic and social variables for aquaculture data collection 20
SECTION 7: ECONOMIC AND SOCIAL DATA IN FISH PROCESSING 21
Text Box 7.1: Economic and social variables for fish processing data collection 21
ANNEX 1.1 - QUALITY REPORT FOR BIOLOGICAL DATA SAMPLING SCHEME 22
ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC DATA SAMPLING SCHEME 37

Data collection framework at national level

General comment: Use this text box to describe how data collection is organised in your Member State (institutions involved, contact information) and in which regional coordination groups (RCG) your Member State participates.

This report presents the general framework of the planned national Work Plan (WP) for the collection of fisheries and aquaculture sectors which Malta proposes to undertake for the three-year period 2022-2024. The national data collection programme collects two main sources of data: fishery independent and fishery dependent data. The proposed activities are based on the requirements set by the new Data Collection Multi-Annual Programme (DC-MAP), comprised by:

- Commission Delegated Decision (EU) 2021/1167 which repeals Delegated Decision (EU) 2019/910, which lays down detailed arrangements on the collection and management of biological, environmental, technical and socioeconomic data by Member States.
- Commission Implementing Decision (EU) 2021/1168, which repeals Implementing Decision (EU) 2019/909 and establishes the list of mandatory surveys at sea and the thresholds below which it is not mandatory for Member States to collect data based on their fishing and aquaculture activities or carry out research surveys at sea.

The format of the document follows the most recent guidelines from the Commission.

The Fisheries Research Unit within the Department of Fisheries and Aquaculture (DFA) of the Ministry for Agriculture, Fisheries, Food and Animal Rights (MAFA) is responsible for the implementation and coordination of all the requirements listed in the DC-MAP as outlined in Malta's Work Plan. As there is only one entity involved, no formal National Coordination meetings are set-up. Nonetheless, collaboration with other national entities is sought when required.

Furthermore, in Malta, all administrative duties involved in the fishing sector, including monitoring and control are undertaken by the DFA so as to ensure the sustainability of fish species and to address the requirements in the fisheries sector, with the following contact details:

Department of Fisheries and Aquaculture
Agriculture Research and Innovation Hub
Ingiered Road
Luqa, LQA 3300
Malta

E-mail: infofisheries.mafa@gov.mt
Telephone number: 00356 22926800
Website: https://agrikoltura.gov.mt/

As Malta's National Correspondent, Dr Jurgen Mifsud coordinates the Maltese commitment to the data collection programme. A team comprising of the National Correspondent, scientists and other key staff collaborate to:

- Promote co-ordination and harmonisation of scientific data collection in the Maltese Islands and ensure collaboration with international coordinators.
- Ensure that activities specified under the DC-MAP concerning scientific data are being effectively carried out at a national level.
- Maintain communications and data collation within Malta for transmission to the

Commission and other specified parties and end-users.
- Collate cost and administrative information relating to the programme.

Information relating to the national data collection is available from:
https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Malta plans to meet the DC-MAP obligations by the collection and use of fisheries data as follows:

a) Legislative procedures (fishing vessel registration data)
b) Direct reports (logbook reports)
c) Complementary data collection
d) Socio-economic data collection
e) Biological data sampling schemes
f) Research survey

Overall, the data collection methodology follows the approach taken in recent years by Malta, with respect to biological and economic data collection. The transition of the WP planning and execution from the former legal basis to the new DC-MAP implies several changes in the structure and content of the WP compared to the previous data collection report, including:

- Number of trips of biological sampling (under Section 2)
- New species included in age reading of commercial species (under Section 2)
- Recreational fisheries sampling (under Section 2)
- Stomach content sampling (under Section 2)
- Marine ecosystem (under Section 3)

Nonetheless, the general rationale and methodology of the data collection, remains very similar to previous WPs and is based on past experience.

Malta acknowledges the significant role of the Regional Coordination Groups (RCGs) on the improvement of the quality of the Work Plans in various aspects of the data collection, especially under the new DC-MAP. As per previous years and as outlined in Table 1.2, Malta plans to participate in the RCG for Economic Issues (ECON), RCG Mediterranean and Black Sea (Med&BS), RCG Large Pelagics (LP) and RCG Decision Meeting (DM). The regional agreements/recommendations of the RCGs are provided under the relevant WP proposal sections.

Text Box 1b: Other data collection activities

General comment: Use this text box to provide information on other data collection activities that relate to your EMFAF operational programme and need to be included in the work plan and the annual report. Describe activities that are funded by the DCF but fulfil objectives under other EMFAF priorities, like marine knowledge, or activities funded by the DCF, but without a direct link to the EU MAP specific requirements or WP template tables, like freshwater fisheries. You can also include one-off specific studies for a particular end-user need that do not enter the regular data collection.

1. Aim of the data collection activity

Follow-up for the Project SecWeb (Mare 2020-08) to have a long-term supportive structure for RCGs on administrative side. Functioning secretariat that gives administrative support for RCG and ISSG chairs and manage the RCG web page (https://www.fisheries-rcg.eu/).

2. Duration of the data collection activity

Starting from 2023.

3. Methodology and expected outcomes of the data collection activity

A detailed description of the secretariat functions, the implementation of the secretariat, the content of the website, the building blocks of the website and the business model for the provision of Secretariat role and website continuation (updating & maintenance) will be provided at the end of Project SecWeb in 2022.

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.

The identification of the target population of recreational fisheries shall be conducted via a general population screening survey. This screening survey would be carried out once during 2022-2024. In this survey only generic information would be collected, in line with the GFCM Handbook for data collection on recreational fisheries in the Mediterranean and Black Sea, which would be followed in our data collection on recreational fisheries as well. The outcome of the screening survey shall then be cross-checked with the official records of the national recreational fisheries federation and associations.

Probability survey sampling would then be conducted as soon as the target population has been statistically well-defined. The planned survey sampling methodology is the stratified random sampling technique, in which the identification of strata shall be identified from the information collected during the screening survey along with local expert knowledge, although a regional stratification is expected. The number of observations within each stratum should then be computed via the standard proportionate stratification equations, in which each respondent would be randomly selected by a computerised routine. If the respondent is not willing to participate in the survey for data collection on recreational fisheries, this respondent shall be substituted by another randomly selected fisher.

The planned data collection methodology shall follow the off-site survey approach, in which data on the fishing effort, catch composition and economic expenditures would be collected. The following baseline information would be requested during the survey: fishing location, fishing mode, fishing time, gear type, number and weight of species, performed fishing trips, and estimated cost per fishing trip. The list of species has been specified in Table 2.4, emanating from Table 4 of the Annex to the Commission Delegated Decision (EU) 2021/1167, the relevant RCG MED&BS 2021 recommendation, the outcome of the previously conducted pilot study on recreational fisheries, and local expert knowledge.

The collected data shall then be validated via standard data quality checks, in which the respondent could be asked to verify the submitted data in case of ambiguities. In order to mitigate the non-response rate, resampling would be carried out and data imputation techniques would also be adopted.

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.

Sampling method:

Sampling will be done under a stratified random sampling scheme with the sampling strata being the métiers and the primary sampling unit (PSU) being the fishing trip.

For trawlers, random sampling is not always possible since only 15 trawlers (which fall within 3 different métiers) operate full-time in Malta. Therefore, the number of available vessels and trips conducted is very limited. For this métier, convenience sampling will be applied. A set of fishers willing to allow onboard observers will be contacted and observations will be conducted on these vessels.

Codification and naming convention:

The métiers are identified following the segmentation in Table 2 of the Commission Delegated Decision (EU) 2019/910 and as recommended in Table 3.3.1 of the RCM 2009 report.

Levels 1-4 are identified according to the gear used by the vessel. The target assemblage (Level 5) is many times straight forward to determine. This is because in most cases, the Level 4 'Gear type' corresponds to only one Level 5 'Target assemblage'. For gears that have more target assemblages, Level 5 is determined from the landings data. This data is analysed and from the percentages by weight of the different groups of species caught, Level 5 is determined.

For the bottom otter trawlers, if more than 80% of the landings are composed of A*ristaeomorpha foliacea* and *Aristeus antennatus,* level 5 is assigned to deep water species. If more than 80% of landings are composed of *Parapenaeus longirostris*, *Plesionika martia*, *Mullus surmuletus* and *Mullus barbatus,* level 5 is assigned to demersal species. If the trip doesn't fit in either category, level 5 is assigned to mixed demersal and deep water species.

Selection of métiers to sample:

The reference data utilised to select the métier to be sampled in 2022-2024 was obtained from the 2018 to the 2020 averaged values, produced from logbooks, sales vouchers and small-scale fishery sampling survey. The ranking system was based on the report of the SGECA/SGRN08-01 and as detailed in the PGMed 2008 report.

A ranking system based on the following three strata was adopted:

1. Commercial landings in tons
2. Total landed value in Euros
3. Effort in fishing days

The métiers that were in the top 90% of one or more of these three categories were selected to be

sampled. The results from this ranking will be applied to the sampling conducted between 2022 to 2024.

OTB_DWS and OTB_DEF have not been selected by the ranking system based on the 2018 to 2020 data. However, since these métiers have significant discards (in line with the RCM Med&BS-LP 2016 recommendations) and since trawling trips are post-stratified into métiers at the end of the year, these will still be sampled to a lesser degree.

Sampling scheme:

The sampling schemes selected are sampling from the market, at sea, and a combination of the two. Those métiers for which the discards behaviour is not significant as identified in the RCM Med&BS (2010) report or for which discards do not represent more than 10% of the total catches by weight or more than 15% of the catches in number, will be sampled from the market.

For PS_LPF_>=14_0_0, onboard observations will be conducted during harvesting and data from landings inspections will also be included.

The number of trips to be sampled per métier was computed with 95% confidence around the mean quarterly historical effort. Based on previous knowledge and previously used measures, trips will be planned according to seasonal fishing effort. The planned number of trips to be sampled also takes into consideration the number of trips Malta needs to sample at the regional level. The same methodology as in previous years was used, so as to allow comparisons to results obtained from previous years. As per ICCAT requirements, scientific observations have to be conducted on 20% of all the longline vessels (>15m) targeting bluefin tuna (BFT), and on 5% of the longline vessels (>15m) targeting swordfish (SWO). The vessels to be selected will be chosen randomly by lottery in the case of SWO and systematically selected in the case of BFT, by choosing the vessels which did not have onboard observers related to this fishery for the longest time in the timeseries. Onboard observers will be present on all the trips conducted by the selected vessels. Since the ICCAT requirement is tied to the number of vessels being sampled and not to the number of trips, the planned number of trips indicated in Table 2.5 for drifting longlines is subject to change, depending on the trips that will be conducted by the selected vessels.

Selection of the PSU:

For sampling at sea, a number of fishers will be selected at random from a list of contacts for vessels employing the selected gear in the Maltese fleet. The fishers will be contacted at the beginning of each month according to the gear that the fishers have been using during that period of time. This will be conducted on a monthly basis in order to ensure that samples are collected over the whole quarter. Non-responses and refusals are documented.

For drifting longlines targeting BFT, the vessels to be sampled are systematically selected from all the longliners (>15m) targeting this species. In previous years, random sampling was employed, however some vessels were being repeatedly selected. Consequently, vessels that had no or few onboard observers will be selected for sampling. In the case of longliners targeting SWO, 5% of the vessels will be randomly selected by drawing from all the longliners (>15m) targeting this species.

For market samples, the trips will be selected from the catches from the particular gear available at

the only fish market in Malta, and the first available catch will be sampled. Samples from trips conducted by vessels using the required gears can also be purchased through other sales channels subject to availability and necessity.

Problems are expected to occur regarding the access of the scientific observers on board fishing vessels that either do not present the necessary conditions to take one extra person, or that refuse to accept them. Sampling targets depends critically on the goodwill of the fishing industry to allow at sea sampling. The main difficulties are expected to occur at the level of smaller vessels that cannot take observers on board. Additionally, at the time of boarding observers have no way of classifying the trip as targeting deep-sea species. In order to ensure compliance with Article 5 (2) of Regulation (EU) 2016/2336, trip classification from handliners and bottom longliners targeting deep water species (or finfish/demersal) is performed after sampling. The same applies to otter board trawlers, since the trip cannot be classified until after sampling due to its dependency on catch composition.

Sampling measures:

Biological parameters (length, weight, sex, age and maturity) will be collected for species in Groups 1, 2 and 3 of the GFCM-DCRF. For Group 1 species, biological parameters (weight, sex, age, maturity) will be reported yearly. For Group 2 species, biological parameters (weight, sex, age, maturity) will be reported every three years. For Group 3 species, length will be recorded yearly and other biological parameters (weight, sex, maturity) for sharks will be reported through the MEDITS survey.

Species present in Groups 1, 2 and 3 of the GFCM-DCRF, but absent from the Tables 2.1 and 2.2 of the DC-MAP, will be included in the sampling plan.

The same number of individuals of large pelagic species as regionally agreed to be collected by each country for the previous triannual period (PGMed, 2014) will be retained for the 2022 to 2024 period, taking into account the yearly quantities required by Malta.

As per RCG Med & BS (2021) recommendation, biological parameters (weight, sex and maturity) for the species listed in Group 3 of the GFCM-DCRF will be reported through the MEDITS survey.

Data archiving & Quality assurance procedure

At sea sampling database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors; (4) Length distribution and effort samples are then connected with the market landings for future cross examinations.

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.

International bottom trawl survey in the Mediterranean (MEDITS)

In accordance with the list of mandatory research surveys of Commission Impementing Decision (EU) 2021/1168, the International bottom trawl survey in the Mediterranean (MEDITS) is the only mandatory research survey that will be carried out by Malta (GSA 15) during 2022-2024. No additional surveys will be performed during the relevant period.

1. Objectives of the survey

The MEDITS programme aims to produce a snapshot of the status of several demersal and benthic stocks through coordinated bottom-trawl surveys in the Mediterranean Sea, in which all the participants use the same gear, the same sampling protocol and the same methodology. Basic data with regards to benthic and demersal species in terms of population distribution and demographic structure is collected annually (MEDITS Working Group, 2017). The data series trends will provide information on the status of the Maltese resources, which may contribute to their management.

As from 2012, the MEDITS reference list of target species includes 82 species, of which 32 are elasmobranchs. The list also includes all species of the *Epinephelus* and *Scomber* genera, for which length measurements should be taken. For all the 82 species, the total number of individuals, the total weight and the individual length will be collected.

This list is split into the following groups:

- Group 1 including 41 species, for which individual sex, maturity, weight and age will be collected.
- Group 2 containing 43 species for which only individual length will be collected.

The full detailed list of the reference species can be found in the MEDITS handbook (2017).

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.

Documentation of the survey design and methods which are used in the survey can be retrieved from the MEDITS handbook which is available online, accessible at: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf
The survey is carried out during the second and third quarters, generally between June and September.

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

The European countries bordering the Mediterranean and Black Sea are obliged to carry out MEDITS survey annually as outlined in the EU DC-MAP framework: eight Mediterranean EU countries (Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia and Spain) and two Black Sea EU countries (Bulgaria and Romania). The MEDITS Steering Committee is the reference entity of the MEDITS group which validates all the decisions taken by the MEDITS group. A list of all vessels used to date for carrying out the survey, is also included in the MEDITS instruction manual.

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

There are no physical task sharing and financial cost sharing taking place between participating countries. In view of the data required in lieu of the multiannual management plan for bottom trawling fisheries of demersal stocks in the Strait of Sicily being devised at GFCM level, as well as other management measures/plans, Malta will not apply any thresholds. Therefore, Malta will continue collecting data through the MEDITS survey.

References

MEDITS Working Group. (2017). International bottom trawl survey in the Mediterranean. MEDITS Instruction Manual Version 9, 106p. Retrieved from: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

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
Complementary data collection is carried out in order to derive estimates for representative samples where data are not to be recorded under Control Regulation (EC) No 1224/2009. This involves a probability sampling scheme, applicable to professional fishing vessels in the national fishing fleet register with length overall less than 10 m, generally referred to as the small-scale fishing fleet. The probability sampling survey, referred to as the Catch and Effort Assessment Survey (CAS), was designed with the objective to provide monthly catch and effort estimates for the small-scale fleet, which do not have a logbook system. Information on the sampling scheme is presented in Annex 1.2; the survey is carried out annually, for the entire duration of the Work Plan implementation.

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.

- 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?

The Department of Fisheries and Aquaculture has been involved in three studies centered on the relative risks of bycatch from long lines (http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.547.2707&rep=rep1&type=pdf; http://birdlifemalta.org/wp-content/uploads/2016/08/Action-C1-report-Final.pdf; https://www.um.edu.mt/library/oar/bitstream/123456789/21089/1/Burgess%20et%20al%20%282009%29%20ICCAT%20Scientific%20Papers%2065%286%29%20pp2262%202269.pdf). Besides these, no other dedicated assessments have been undertaken on other gears, however data on the incidental bycatch of vulnerable species is collected through routine onboard observations of fishing activity.

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

The above studies conducted locally found long lines, particularly drifting long lines, to present a risk to *Calonectis diomedea* and *Carretta carretta* in Maltese waters.

- What are the methods to calculate the observation effort?

NA

- 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.

Incidental bycatches are recorded alongside the standard data collection procedures followed during onboard observations, as adapted from the GFCM guidelines (http://www.fao.org/3/ca4991en/ca4991en.pdf).

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?

Yes.

- 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

NA

Additional description on sampling frames

NA

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. This text box applies to the work plan and the annual report.

1. Aim of the study

To investigate the physical impacts of bottom-contact fishing gears on marine benthic habitats.

2. Duration of the study

The study will run from 2022 until 2024.

3. Methodology and expected outcomes of the study

The first stage of the study will consist of preliminary desk-based research and the procurement of any necessary materials and services, in order to prepare for the field-work and analysis which will be carried out throughout the remainder of the study. This desk-based research will be used to identify the gear-types employed by local fishers which make contact with the seafloor, as well as the main habitats in which each of these gears are typically operated, and what interactions between the two have been documented to date.

The second stage of the study will consist of the direct observation of fishing activity. Fishers who utilise these identified gears will be contacted in order to arrange for these observations. To achieve this, a combination of scuba divers and remotely operated vehicles (ROVs), for shallow and deeper waters respectively, will be employed to observe the activities in their typically worked habitats, and

under typical working conditions whenever possible. In some circumstances gears may be deployed outside of these typical working conditions to facilitate observations; gears typically deployed at night, for example, may be deployed during the day to allow for improved vision underwater.Due to the nature and variety of fishing gears, observations will vary according to each métier and its accessibility for underwater observation. Static gears will primarily be observed during deployment and retrieval, whilst non-static gears will be observed whilst active and in motion. These observations will be repeated for each gear according to the number of habitats the gear is typically associated with, particularly in the case of ecologically important habitats.

Habitat observations will focus on two major habitat components: biological features (including biogenic structures) and geomorphological features, which together constitute the main structure of a benthic habitat. Any interactions between fishing gears and these components will be recorded and assessed in detail. Indirect effects on habitats such as changes in ecological functioning and food webs that occur as a result of changes in species composition arising from fishing activities are considered beyond the scope of this study and thus will not be assessed.

The final stage of the study will consist of the qualitative assessment and analysis of the observations gathered in the field. All observed interactions will be detailed and ranked according to the level of disturbance to the physical habitat. Once completed, this will provide new insight into the precise nature of the direct impacts of commercial fisheries on local benthic habitats. The first tentative results are expected by the end of 2024, although an extension to the next Work Plan submission would also be considered if necessary from a scientific point of view.

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

Clustering is carried out post data collection, meaning that the sampling design/plan is unaffected. Grouping of vessels from different fleet segments is carried out for confidentiality reasons only when reporting economic and social variables.

In order to derive estimates on representative samples where data are not to be recorded under the Control Regulation (EC) No 1224/2009, complementary data collection is carried out on fishing vessels with length overall less than 10m, meaning data reported in length classes VL0006 and VL0612. The Maltese fishery is a relatively small industry of a typical Mediterranean artisanal type. The absolute majority (over 90%) of the professional Maltese fishing fleet is less than 10m in length. It is frequently described as a multi-species and multi-gear fishery, with the majority of the fishers switching from one gear to another several times throughout the year. Vessels exceeding 10m LOA (i.e. VL0612, VL1218, VL1824, VL2440 and VL40XX) are covered under the Control Regulation.

According to STECF EWG 15-07, the small-scale fleet (SSF) is defined as vessels under 12m using non-towed gears, whilst large-scale fleet segment (LSF) is defined as vessels over 12m. Based on this 12m threshold, the rules set for clustering by Malta is firstly dependent on the length class - whether it is under or over 12m LOA.

For vessels less than 12m LOA (i.e. length classes VL0006 and VL0612), segments are considered as falling under the category *(b) 'Segments similar to other segments'* of the DCF clustering guidance as recommended by SGECA 09-02.

As per Table 8 'Fleet Segmentation' of the Commission Delegated Decision (EU) 2021/1167, if the fishing technique is classified as passive gears, the segment is clustered under fishing technique 'vessels using polyvalent passive gears only' (PGP) within the same length class.

In case of a very low number of vessels using passive gears, such as 'vessels using hooks' (HOK), 'vessels using pots and/or traps' (FPO) and 'drift and/or fixed netters' (DFN), these will be clustered together with the fishing technique 'vessels using polyvalent passive gears only' (PGP) in the same length class.

For vessels greater than 12m LOA (i.e. length classes VL1218, VL1824, VL2440 and VL40XX), segments are considered as falling under the category *(a) 'important segments with distinct characteristics'* of DCF clustering guidance as recommended by STECF SGECA 09-02. This is especially relevant for fishing techniques under national management plans (vessel using purse seine

nets “lampara”, bottom otter trawlers and dolphinfish FAD fishery).

In the case of ‘purse seiners’ (PS) in the segments PS VL1218, VL1824 and VL2440 are grouped into the cluster PS VL1824. In the case of ‘demersal trawlers and/or demersal seiners’ (DTS), the segments DTS VL1824 and VL2440 are clustered into DTS VL2440. The segments cluster ‘vessel using other active gears’ MGO VL1218 and VL1824, and ‘vessels using active and passive gears’ PMP VL1824 are grouped in the cluster MGO VL1824, since all of these fishing techniques involve active gears.

As per DCF clustering guidance and as recommended by several STECF working groups (e.g. EWG 13-28 and EWG 15-07), this clustering methodology will be applied consistently over time in the same groups for all years (even if the threshold is not reached for some years) in order to maintain the time-series of the data. As the number of vessels in a fleet segment varies from year to year, this consistent approach allows time-specific analyses to be done.

2. Description of activity indicator

NA. Malta does not use an activity indicator to divide the fleet segment into different activity levels.

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

NA

References

DCF Clustering of Fleet Segments for the Economic Data Call on the EU Fishing Fleet. 2004. Accessible from: https://datacollection.jrc.ec.europa.eu/documents/10213/1235778/Clustering_2014.pdf

Scientific, Technical and Economic Committee for Fisheries (STECF). 2009. Report of the sub-group on research needs (SGECA/SGRN 09-02). Publications Office of the European Union, Luxembourg, 278 pp. Retrieved from: https://op.europa.eu/en/publication-detail/-/publication/bda55143-6cea-4f23-b5b0-be0e90282428/language-en

Scientific, Technical and Economic Committee for Fisheries (STECF). 2013. Assessment of balance indicators for key fleet segments and review of national reports on Member States efforts to achieve balance between fleet capacity and fishing opportunities (STECF-13-28). Publications Office of the European Union, Luxembourg, 140 pp. Retrieved from: https://stecf.jrc.ec.europa.eu/reports/balance/-/asset_publisher/3rBi/document/id/673445?inheritRedirect=false

Scientific, Technical and Economic Committee for Fisheries (STECF). 2015. Annual Economic Report on the EU Fishing Fleet (STECF-15-07). Publications Office of the European Union, Luxembourg, 434 pp. Retrieved from: https://stecf.jrc.ec.europa.eu/documents/43805/1034590/2015-07_STECF+15-07+-

+AER+2015_JRCxxx.pdf

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 Eurostat data (reference year: 2019) reported in '*Aquaculture production in tonnes and value*' (Fish_AQ2A), Malta's total percentage production to total Union production volume is 1.2%.

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

NA

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.
Malta will be collecting fish processing data since it will allow another branch within the fishing industry to be assessed, thus enabling advice to be provided to relevant end-users within the Maltese public sector. For further information on the data collection scheme for fish processing refer to Annex 1.2 Fish processing text box.

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: MLT
Region: Mediterranean and Black Sea
Sampling scheme identifier: Market Samples
Sampling scheme type: Commercial fishing trip
Observation type: SciObsOnShore
Time period of validity: from 2022 until 2024
Short description (max 100 words): Marine samples are purchased through commercial sales in order to measure and assess commercially landed species. All the species present in these samples are measured and analysed to some degree. Those listed under Groups 1, 2, and 3 of the GFCM-DCRF are measured and analysed accordingly, whilst those species not listed are at least measured for length and weight.
Description of the population
Population targeted: The landed trips in Malta. **Population sampled:** Landed trips available for sale, caught with the gears listed in Table 2.5 of the WP. **Stratification:** The population is stratified based on the fishing gear used by the fisher.
Sampling design and protocols
Sampling design description: The métiers to be sampled are selected using the ranking method based on landings, effort (days at sea) and values. The number of trips to be sampled is computed with 95% confidence around the mean quarterly historical effort. Departmental officers attend the only fish market in Malta to purchase available landed samples from trips using the required gears; trips conducted by vessels using the required gears can also be purchased through other sales channels subject to availability and necessity. This sampling scheme relates to the landed portion of the catch. **Is the sampling design compliant with the 4S principle?:** Y

Regional coordination: No, however the selection of métiers to be sampled is done through the same ranking method (gears contributing to 90% of the total landings, effort and value) and the data is collected following the relevant recommendation of the RCG Med & BS.

Link to sampling design documentation: The information is available at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

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: The information is available at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Sampling is monitored monthly through electronic systems. If samples cannot be purchased in accordance with the sampling plan due to unforeseen circumstances, other sales channels are explored.

Data capture

Means of data capture: The measures are obtained using a measuring board (length), scales (weight) and through macroscopic observations of specimens (to determine the sex and maturity). In case of age reading, this is done from otoliths, anal fins and dorsal spine depending on the species.

Data capture documentation: The methods followed are those indicated in the GFCM-DCRF (http://www.fao.org/gfcm/data/dcrf/en/) and ICCAT manuals.

Quality checks documentation: Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

Data storage

National database: Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system.

International database: NA

Quality checks and data validation documentation: Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Sample storage

Storage description: Soft organic tissues are stored frozen or kept in cold storage, whilst harder materials are stored in a cold, dry cabinet. All of these storage systems are securely kept under lock and key.

Sample analysis: Protocols are determined according to the scientific literature and regional recommendations available for each species.

Data processing

Evaluation of data accuracy (bias and precision): Y;

https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Editing and imputation methods: Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Quality document associated to a dataset: N

Validation of the final dataset: Information on this is provided at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

MS: MLT

Region: Mediterranean and Black Sea

Sampling scheme identifier: Onboard Observations

Sampling scheme type: Commercial fishing trip

Observation type: SciObsAtSea

Time period of validity: from 2022 until 2024

Short description (max 100 words):

Sampling scheme aiming at collecting length data from commercial catches at-sea for the species indicated in Table 2.1 of this WP.

Description of the population

Population targeted: The trips carried out by vessels operating in the Maltese fishing fleet.

Population sampled: The trips carried out by vessels (i) operating the fishing gears selected for sampling and (ii) which are willing and able to accommodate observers onboard. In case of drifting longlines, as per ICCAT recommendations, observations are limited to trips carried out by vessels over 15 m which are authorised to target BFT and SWO.

Stratification: The population is stratified based on the gear registrations for each vessel.

Sampling design and protocols

Sampling design description: Fishers using the relevant gears, are randomly selected per quarter and contacted at the beginning of each month according to the gear that the fishers have been using during that period of time. The trips conducted by the fishers who are contacted by the Department first are sampled. In case of drifting longlines for BFT, vessels not previously selected for sampling are selected. In case of drifting longlines for SWO, vessels are selected by random draw. Observers are then allocated to accompany the selected vessels on all trips (using drifting longlines targeting BFT or SWO) conducted in the given year. This sampling scheme relates to both the landed and discarded portion of the catch.

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

Regional coordination: No, however the selection of métiers to be sampled is done through the same ranking method (gears contributing to 90% of the total landings, effort and value) and the data is collected following the relevant recommendation of the RCG Med & BS.

Link to sampling design documentation: The information is available at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

Compliance with international recommendations: Y; the WP follows the recommendations made by the GFCM (http://www.fao.org/gfcm/data/dcrf/en/).

Link to sampling protocol documentation: The information is available at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

Sampling implementation
Recording of refusal rate: Y **Monitoring of sampling progress within the sampling year:** Sampling is monitored monthly through electronic systems. If trips cannot be sampled in accordance with the sampling plan, samples are instead purchased from corresponding commercial sales.
Data capture
Means of data capture: The measures are obtained using a measuring board (length) and in some cases macroscopical observations of specimens to determine the sex and maturity. **Data capture documentation:** The methods followed are those indicated in the GFCM-DCRF (http://www.fao.org/gfcm/data/dcrf/en/). **Quality checks documentation:** Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx
Data storage
National database: Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system. **International database:** NA **Quality checks and data validation documentation:** Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx
Sample storage
Storage description: Soft organic tissues are stored frozen or kept in cold storage, whilst harder materials are stored in a cold, dry cabinet. All of these storage systems are securely kept under lock and key. Sample analysis: Protocols are determined according to the scientific literature and regional recommendations available for each species.
Data processing
Evaluation of data accuracy (bias and precision): Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx **Editing and imputation methods:** Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx **Quality document associated to a dataset:** N **Validation of the final dataset:** Information on this is provided at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

MS: MLT
Region: Mediterranean and Black Sea
Sampling scheme identifier: Stock-based sampling

Sampling scheme type: Biological parameters specific
Observation type: SciObsOnShore
Time period of validity: from 2022 until 2024
Short description (max 100 words): Sampling scheme aiming at collecting biological parameters from commercial landings for the species indicated in Table 2.2 of this WP.
Description of the population
Population targeted: The landed trips in Malta. **Population sampled:** Landed trips available for sale. **Stratification:** No further stratification is applied.
Sampling design and protocols
Sampling design description: The number of individuals to be sampled is computed around the variance of the historical average length of the species. Departmental officers attend the only fish market in Malta to purchase available landed samples of the species listed in Table 2.2. Samples can also be purchased through other sales channels subject to availability and necessity. This sampling scheme relates to the landed portion of the catch. **Is the sampling design compliant with the 4S principle?:** Y **Regional coordination:** The data is collected following the relevant recommendation of the RCG Med & BS. **Link to sampling design documentation:** The information is available at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx. **Compliance with international recommendations:** Y; the WP follows the recommendations made by the GFCM (http://www.fao.org/gfcm/data/dcrf/en/) and RCG LP. **Link to sampling protocol documentation:** The information is available at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.
Sampling implementation
Recording of refusal rate: NA **Monitoring of sampling progress within the sampling year:** Sampling is monitored through electronic systems. If difficulties in purchasing samples are encountered, other sales channels are explored.
Data capture
Means of data capture: The measures are obtained using a measuring board (length), scales (weight) and through macroscopic observations of specimens (to determine the sex and maturity). In case of age reading, this is done from otoliths, anal fins and dorsal spine depending on the species.

Data capture documentation: The methods followed are those indicated in the GFCM-DCRF (http://www.fao.org/gfcm/data/dcrf/en/) and ICCAT manuals.

Quality checks documentation: Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Data storage

National database: Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system.

International database: NA

Quality checks and data validation documentation: Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Sample storage

Storage description: Soft organic tissues are stored frozen or kept in cold storage, whilst harder materials are stored in a cold, dry cabinet. All of these storage systems are securely kept under lock and key.

Sample analysis: Protocols are determined according to the scientific literature and regional recommendations available for each species.

Data processing

Evaluation of data accuracy (bias and precision): Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Editing and imputation methods: Y; https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Quality document associated to a dataset: N

Validation of the final dataset: Information on this is provided at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

MS: MLT

Region: Mediterranean and Black Sea

Sampling scheme identifier: Survey

Sampling scheme type: Recreational (off site surveys)

Observation type: SciObsOnShore

Time period of validity: from 2022 until 2024

Short description (max 100 words):

Planned sampling scheme on recreational fisheries with the aim to estimate the annual total catches and effort, which should be conducted after a population screening survey has been carried out. The identified list of species has been outlined in Table 2.4 of this WP.

Description of the population

Population targeted: Recreational fishers included in the population screening survey.

Population sampled: Recreational fishers interviewed during the population screening survey and willing to participate in the data collection survey on recreational fisheries.

Stratification: Regional stratification, although further stratification could be taken into consideration once the screening survey is conducted.

Sampling design and protocols

Sampling design description: Once the target population of recreational fishers has been defined and stratified, and the sample size determined, the sample of recreational fishers to be enrolled in the data collection survey would be randomly chosen within each stratum. The selected recreational fishers would then be contacted to determine if they would be participating in the survey. Fishers who decline to participate would then be substituted by other recreational fishers who shall be randomly selected from the available list of fishers in that stratum.

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

Regional coordination: Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea

Link to sampling design documentation: http://www.fao.org/gfcm/publications/series/technical-paper/669/en/

Compliance with international recommendations: Y

Link to sampling protocol documentation: http://www.fao.org/gfcm/publications/series/technical-paper/669/en/

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year: Resampling of recreational fishers in case of non-responses and data validation with the respondent in case of ambiguities in the collected data.

Data capture

Means of data capture: Face-to-face interviews and/or phone calls with recreational fishers.

Data capture documentation: https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Quality checks documentation: N (The documentation will be available in 2022 accessed via https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx)

Sample storage

Storage description: No soft tissues and hard parts will be collected.

Sample analysis: NA

Data storage

National database: Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system.

International database: NA

Quality checks and data validation documentation:
https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Data processing

Evaluation of data accuracy (bias and precision): N (2022);
https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Editing and imputation methods: N (2022);
https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Quality document associated to a dataset: N

Validation of the final dataset: Information on this will be provided at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

MS: MLT

Region: Mediterranean and Black Sea

Sampling scheme identifier: MEDITS

Sampling scheme type: Research survey at sea

Observation type: SciObsAtSea

Time period of validity: 2022-2024

The survey programme MEDITS aims to collect basic data with regards to benthic and demersal species in terms of population distribution as well as demographic structure on an annual basis. This survey will be able to produce a snapshot of the status of several demersal and benthic stocks through coordinated sampling of demersal resources in the Mediterranean and Black Sea. MEDITS survey falls under mandatory survey at sea as set out in Table 1 of the of the Commission Implementing Decision (EU) 2021/1168.

Description of the population

Population targeted: As from 2012, the MEDITS reference list of target species includes 82 species, of which 32 are elasmobranchs. The list also includes all species of the *Epinephelus* and *Scomber* genera. This list was split into two groups:

- Group 1 including 41 species, for which individual sex, maturity, weight and age should be collected; and
- Group 2 containing 43 species for which only individual length is to be collected.

The full detailed list of the reference species can be found in the MEDITS handbook, available at: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

The main survey area covered is the entire Mediterranean and Black Sea; Malta carries out the survey in GSA 15.

Population sampled: The population being sampled are demersal species.

Stratification: The hauls for the research survey are positioned using a depth stratified scheme with random drawing of the positions within each stratum. The number of locations in each stratum is proportional to the occurrence of each stratum in GSA 15, however in some cases (due to damages to the fishing net which would have been noted in the previous years and other logistical difficulties) the planned location of that certain haul may be slightly altered from year to year. The depths are fixed in all areas as strata limits, starting from 10-50m (a), 51-100m (b), 101-200m(c), 201-500m (d) and 501-800m (e).

Sampling design and protocols

Sampling design description: The sampling design follows the MEDITS manual - https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

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

Regional coordination: The sampling design and protocols were developed as part of a regional agreement. The MEDITS Steering Committee falls under the GFCM and the Regional Coordination Group Mediterranean and Black Sea (RCG Med&BS).

Link to sampling design documentation: The sampling design follows the MEDITS protocol, available from: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

Compliance with international recommendations: Y

Link to sampling protocol documentation: The documentation can be accessed at: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: The MEDITS survey is carried out over a period of three weeks in the second and third quarters in GSA 15. Sampling progress is monitored using measures indicated in the MEDITS protocol.

Data capture

Means of data capture: The samples are first brought to the lab. Length and weight data are collected using measuring boards and calibrated weighing scales. Sex and maturity for the target species are also recorded using the MEDITS maturity scales which were published by FAO. The data collected is then inputted into a dedicated database known as TruST (Scientific Trawl Surveys). The database is used to store, retrieve, update, analyse and manipulate trawl survey data.

Data capture documentation: The MEDITS manual provides information on the data capture: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

Quality checks documentation: Y
The documentation can be retrieved from:
https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

Data storage

National database: TruST (Scientific Trawl Surveys). This database is used to store, retrieve, update, analyse and manipulate trawl surveys data (http://www.kosmosambiente.it/scientifictrawlsurveys/).

International database: NA

Quality checks and data validation documentation: The documentation can be retrieved from: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

Sample storage

Storage description: The samples collected during the survey are marine organisms. When the samples are collected, they are blast frozen and stored in a freezer onboard the vessel until the survey is completed. The samples are then stored in a freezer at a temperature of -25°C until they are ready to be processed.

Sample analysis: The processing of samples is in line with the MEDITS handbook, available from: https://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2017_version_9_5-60417r.pdf

Data processing

Evaluation of data accuracy (bias and precision): Y.
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 between Member States carrying out the MEDITS survey, which rationale has been incorporated in the checks made at JRC level during the data upload via the Data Validation Tool which is available on the JRC website (https://ec.europa.eu/jrc/en) and and the assessment working groups (STECF-EWG). In addition, the national database TruST also contains self-integrated data quality checks.

Editing and imputation methods: N (The documentation will be available in 2022 accessed via https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx)

Quality document associated to a dataset: N

Validation of the final dataset: In order to automatically perform the data check procedure by means of a routine enabling errors to be detected and facilitating their correction, the RoME routine, an R code for performing multiple and cross checks on MEDITS survey data in TA, TB, TC, TE and TL files, was developed (Bitetto et al. 2019). The RoME Manual can be downloaded together with the software at the following link:
https://www.coispa.it/index.php?option=com_content&view=article&id=25&Itemid=149&lang=en
After checking the dataset via the RoME routine, the quality checks and validation of the final dataset is carried out via the DV tool (https://ec.europa.eu/jrc/en).

References

Bitetto, I. Facchini, M.T, Spedicato, M.T. (2017). RoME (version 1.4): R code to perform multiple checks on MEDITS Survey data (TA, TB, TC, TD, TT and TE files). Coispa Tecnologia & Ricerca - Stazione sperimentale per lo Studio delle Risorse del Mare. Retrieved from: https://www.coispa.it/index.php?option=com_content&view=article&id=25&Itemid=149&lang=en

MS: MLT

Region: Mediterranean and Black Sea

Sampling scheme identifier: Stomach Content Analysis

Sampling scheme type: Research survey at sea (MEDITS)

Observation type: SciObsOnShore

Time period of validity: From 2022 until 2024

Short description (max 100 words):

Panned stomach content analysis of *Merluccius merluccius* samples following the protocols described in STREAM deliverable D.4.1. The aim is to sample 20 full stomachs per length group each year, totalling 60 full stomachs. All samples will be obtained from the annual MEDITS survey, as outlined in Table 4.1 of this WP.

Description of the population

Population targeted: *Merluccius merluccius* samples obtained through the MEDITS survey.

Population sampled: 20 full stomach samples for each length group, totalling 60 full stomachs.

Stratification: The hauls for the research survey are positioned using a depth stratified scheme with random drawing of the positions within each stratum. The number of locations in each stratum is proportional to the occurrence of each stratum in GSA 15, however in some cases (due to damages to the fishing net which would have been noted in the previous years and other logistical difficulties) the planned location of that certain haul may be slightly altered from year to year. The depths are fixed in all areas as strata limits, starting from 10-50m (a), 51-100m (b), 101-200m(c), 201-500m (d) and 501-800m (e).

Sampling design and protocols

Sampling design description: *Merluccius merluccius* samples will be processed in the laboratory in line with the typical procedure for MEDITS samples. Once a sample is processed, the state of the stomach will be reviewed following the STREAM protocol. All full stomachs encountered will be put aside, labelled and frozen. Once all *M. merluccius* specimens have been thusly sampled, 20 full stomach samples from each of the three length groups will be selected at random. Following the STREAM protocol, the length groups are designated as follows: juveniles (TL<20cm), sub-adults (TL=20-35cm), and adults (TL>35cm). Once selected, each of these stomachs will be analysed accordingly. It is worth mentioning however that not all samples are guaranteed a full stomach, as some stomachs could be everted, regurgitated, or empty, and this could potentially affect the total number of adequate samples per length group suitable for analysis. To attempt to prevent this, in cases where the selected stomach samples are found to be empty, these will be replaced by selecting another stored stomach sample of the appropriate length class at random, up until the store of available stomach samples has

been exhausted.

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

Regional coordination: STREAM Deliverable D. 4.1 - Updated protocols and guidelines for collection, processing and analysis of stomach contents

Link to sampling design documentation: https://streamstakeholder.coispa.eu/WebInterface/login.html

Compliance with international recommendations: Y

Link to sampling protocol documentation: https://streamstakeholder.coispa.eu/WebInterface/login.html

Sampling implementation

Recording of refusal rate: NA

Monitoring of sampling progress within the sampling year: Since this work is linked with MEDITS sampling, this will be in line with the MEDITS protocol.

Data capture

Means of data capture: Length, weight, sex, and sexual maturity are all collected during routine MEDITS sampling. Once the stomach samples have been selected (as listed above), these will be analysed. Stomachs found to be full will be analysed in detail in order to identify the species consumed to the highest degree of accuracy possible whilst following the STREAM protocol. Stomachs found to be regurgitated or empty will be replaced wherever possible, however this is limited by the available number of *M. merluccius* samples caught with non-everted stomachs.

Data capture documentation: https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Quality checks documentation: N (2022); https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Sample storage
Storage description: The samples collected during the survey are marine organisms. When the samples are collected, they are blast frozen and stored in a freezer onboard the vessel until the survey is completed. The samples are then stored in a freezer at a temperature of -25°C until they are ready to be processed. Once these have been processed and the stomachs extracted, the stomach samples will again be frozen until they are ready to be analysed. Sample analysis: https://streamstakeholder.coispa.eu/WebInterface/login.html
Data storage
National database: Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system. **International database:** NA **Quality checks and data validation documentation:** https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx
Data processing
Evaluation of data accuracy (bias and precision): N (2022); https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx **Editing and imputation methods:** N (2022); https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx **Quality document associated to a dataset**: N **Validation of the final dataset**: Information on this will be provided at https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx.

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
'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. *'Sampling scheme' refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.* *'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.* *'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'.*
Sector name(s): Economic data on fisheries – complementary data collection for fishing activities
Sampling scheme: PSS - Probability Sampling Survey
Variables: Days at sea, Hours fished, Fishing days, kW * Days at sea, GT * Days at sea, kW * Fishing Days, GT * Fishing days, Number of trips, Number of fishing operations, Number of nets(m) * soak time (days), Number of nets / Length, Number of hooks, Number of lines, Numbers of pots, traps, Number of FADs/buoys, Number of support vessels, Live Weight of landings total and per species
Supra region(s): Mediterranean Sea and Black Sea
Survey planning
The probability sampling scheme applies to professional fishing vessels in the Maltese fishing fleet with length overall (LOA) less than 10 m, generally referred to as the small-scale fishing fleet. It is used to derive estimates for representative samples where data are not to be recorded under Control Regulation (EC) No 1224/2009. The probability sampling survey, referred to as the Catch and Effort Assessment Survey (CAS), was designed with the objective to provide monthly catch and effort estimates for the small-scale fleet, which do not have a logbook system.
Survey design and strategy
Statistical population The population under study is the group of professional fishing vessels that appear in the Maltese Fishing Vessel registry and that in the reference period had a valid license to carry out maritime

fishing activity. The statistical unit is the fishing vessel.

Geographical scope

The geographical scope of the study is limited to the Mediterranean and Black Sea region. This region is divided into several geographical subareas (GSA) as defined by the General Fisheries Commission for the Mediterranean (GFCM).

Temporary coverage

The statistics are carried out on an annual basis.

Reference period

The reference period for the data is the calendar year.

Malta provides days at sea for each vessel segment, by quarter and by geographical origin of the catch as defined by the General Fisheries Commission for the Mediterranean (GFCM) geographical subareas (GSA).

The collection of days at sea depends on the LOA of the fishing vessel, where such data is either reported in logbooks for the professional fishing vessels with LOA greater than 10 m, or collected via probability sampling surveys of landings for the professional fishing vessels with LOA less than 10 m. Vessels having special authorisations (lampara, vessels using fish aggregating devices (FADs), vessels using drifting longlines targeting bluefin tuna or swordfish, and vessels using seine nets) are obliged to also use logbooks to report their catches.

Sampling Approach:

The population under study consists of the professional fishing vessels with LOA less than 10 m during the survey reference year, which are subjected to a probability sampling survey consisting of a structured multivariate questionnaire via direct interviews and/or phone calls with fishers. The sample of 10% of the respective population is (stratified) randomly selected every year by quarter. The sampling unit is a single vessel which is randomly selected from the Fishing Vessel Register.

Collection of data:
Face to face interviews and/or phone calls are conducted with the vessel owners every fortnight. Information on catches, effort in fishing days, by type of gear, fishing areas and activity is collected. This methodology of obtaining data supplements the data from logbooks, the fish market and other official sources. The data obtained from the sample is then raised to the population.

The objective of the survey is to estimate economic variables related to the stocks listed Table 1 of the Commission Delegated Decision (EU) 2021/1167. Data is collected to estimate overall annual commercial landings by species, by quarter and by geographical origin of the catch. This data collection enables the correlation of the catch variables to the effort variables.

The following fishing activity variables are collected by means of a direct survey:

- Days at sea;
- Fishing days;
- Gear used (including size of gear);
- Geographical position of the catch;
- Species caught; and
- Weight of landings per species.

The annual average price per species is calculated by dividing the annual sum of the total value in Euro per species by the sum of the total weight in kilograms of the same species, as obtained from the sales vouchers.

Estimation design

Stratification:

For streamlining purposes so that the data time-series is comparable over time, the criteria of season and of the fleet segmentation as described in Appendix IV of Commission Decision EC 93/2010 is used, which includes registration class (full-time/part-time), length segment and fleet segmentation based on the gears registered in the fleet register.

Sampling rate:

The sampling rate, which varies according to the number of vessels in each fleet segment in the reference year, is indicated in Table 1.

Table 1 Sampling rate of professional fishing vessels less than 10 m LOA.

Fleet segment	Sample number	Sampling strategy
< 5 vessels	Census	All year round
6 – 50 vessels	Census	All divided per quarter
51 – 200 vessels	10%	Divided per quarter
> 200 vessels	50 vessels	Divided per quarter

Estimating procedures:

From the vessels sampled, data on catch and effort is raised to the total fleet population. Raising is based on a weighting factor attributed to the total fleet segment. Both datasets (logbook and sampling approach) are combined in order to obtain an estimate of the total values.

Non-responses:
In case of non-responses, these are replaced with another vessel categorised in the same fleet segment.

Error checks

Data collected from the CAS is cross-checked with data originating from the market sales notes and direct sales vouchers. In addition, information collected may also be cross-checked directly with the fishers.

The submitted data will be evaluated thoroughly and any outliers will be identified and possibly removed after re-checking with the data source.

Data checking and validation is carried out manually by the officers responsible of the different data collection units within the Department of Fisheries and Aquaculture. Data checks include checks for duplicate data entries and checks for data format.

Data storage and documentation

Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system. There are currently discussions at the regional level to set up a regional database, whereby Malta is an active participant in the Regional Coordination Group (RCG) meetings.

Additional methodological documentation can be accessed via the Department of Fisheries and Aquaculture website via the following link: https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Revision

The survey is carried out annually. The population under study is based on the population of fishing vessels listed in the fishing fleet register at the start of the reference year, therefore the sample population varies annually.

Confidentiality

Confidentiality policy
The objective of the CAS questionnaire is to comply with the requirements of marine fishing of Council Regulation 199/2008 which establishes a community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy and repealed by Regulation (EU) 2017/1004.

The necessary administrative, logical and physical measures are adopted in order to effectively protect the confidentiality of data from the data collection and until its publication, as well as its storage.

Following guidelines by STECF, for important segments with distinct characteristics, clustering of segments will be carried out for confidentiality reasons. Clustering will be carried out post-data collection, meaning that the sampling population is unaffected. Clustering, or "fleet segment aggregation", is required when compiling the annual Fleet Economic Data Call (STECF 15-07).

Where the DFA is required to process personal data (as defined in Regulation (EU) 2016/679, the

'GDPR') for the performance, implementation and execution of its deliverables, it will be carried out in accordance with all applicable data protection legislation, including the GDPR and the Data Protection Act (Chapter 586, Laws of Malta).

Confidentiality with external users

Data collection for research purposed by the Department of Fisheries and Aquaculture and which is not personal data as provided by the Data Protection Act, Chapter 586 of the Laws of Malta and any other applicable laws in relation to personal data as in force from time to time in Malta.

In terms of data requested by end-users, all data processed and exchanged is considered as confidential amongst themselves and may only be disclosed subject to common written agreement between the parties in aggregated format.

References

Scientific, Technical and Economic Committee for Fisheries (STECF). 2015. Annual Economic Report on the EU Fishing Fleet (STECF-15-07). Publications Office of the European Union, Luxembourg, 434 pp. Retrieved from: https://stecf.jrc.ec.europa.eu/documents/43805/1034590/2015-07_STECF+15-07+-+AER+2015_JRCxxx.pdf

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.
'Sampling scheme' refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.
'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.
'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'.

Sector name(s): Economic data on fisheries

Sampling scheme: C - Census

Variables: Days at sea; Gross value of landings; Mean age of vessels; Mean LOA of vessels; Number of vessels; Total vessel power; Total vessel tonnage

Supra region(s): Mediterranean Sea and Black Sea

Survey planning

The census applies to all professional fishing vessels in the professional Maltese fishing fleet in conformity with the Control Regulation (EC) No 1224/2009. The population comprises all active and inactive vessels registered in the Union Fishing Fleet Register as defined in Commission Implementing Regulation (EU) 2017/218 on 31 December of the reporting year and vessels that do not appear in the Register at that date but have fished at least one day during the reporting year.

Survey design and strategy

The data source of the number of vessels, total vessel power, total vessel tonnage, mean age and mean LOA of vessels is the Maltese fishing fleet register. The variable days at sea is collected via logbooks for vessels with LOA > 10 m, whilst the variable gross value of landings is collected via sales notes, referring to official local fish market and direct sales data.

Statistical population
The population under study is the group of professional fishing vessels that appear in the Maltese Fishing Vessel registry and that in the reference period had a valid license to carry out maritime fishing activity. The statistical unit is the fishing vessel.

Geographical scope
The geographical scope of the study is limited to the Mediterranean and Black Sea region. This region is divided into several geographical subareas (GSA) as defined by the General Fisheries Commission for the Mediterranean (GFCM).

Temporary coverage
The statistics are carried out on an annual basis.

Reference period

The reference period for the data is the calendar year.

Estimation of the Gross value of landings

Malta provides data on commercial landings by weight and monetary value for each segment by species, by quarter and by geographical origin of the catch as defined by the General Fisheries Commission for the Mediterranean (GFCM) geographical subareas (GSA).

Landings values are also based on data derived from the official local fish market and direct sales notes data.

All information on sold fish is registered and stored in the sales notes database and includes, among others, the following information:

- Vessel registration number;
- Landing place, date and buyer;
- Species;
- Weight in kilo; and
- Value in Euro.

Estimation design

The variables are collected as part of the obligations of the Control Regulation (EC) No 1224/2009.

Error checks

Data collected from paper logbooks is validated at data inputting stage and information collected may also be cross-checked directly with the fishers. The e-logbook software contains integrated data validation tools.

The submitted data will be evaluated thoroughly and any outliers will be identified and possibly removed after re-checking with the data source.

Data checking and validation is carried out manually by the officers responsible of the different data collection units within the Department of Fisheries and Aquaculture. Data checks include checks for duplicate data entries and checks for data format.

Data storage and documentation

Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system. There are currently discussions at the regional level to set up a regional database, whereby Malta is an active participant in the Regional Coordination Group (RCG) meetings.

Additional methodological documentation can be accessed via the Department of Fisheries and Aquaculture website via the following link: https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Revision

The population under study is the entire population of fishing vessels listed in the fishing fleet register at the start of the reference year. The reference period for the data is the calendar year. Data collected in line with Control Regulation (EC) No 1224/2009.

Confidentiality

Confidentiality policy

The necessary administrative, logical and physical measures are adopted in order to effectively protect the confidentiality of data from the data collection and until its publication, as well as its storage.

Following guidelines by STECF, for important segments with distinct characteristics, clustering of segments will be carried out for confidentiality reasons. Clustering will be carried out post-data collection, meaning that the sampling population is unaffected. Clustering, or "fleet segment aggregation", is required when compiling the annual Fleet Economic Data Call (STECF 15-07).

Where the DFA is required to process personal data (as defined in Regulation (EU) 2016/679, the 'GDPR') for the performance, implementation and execution of its deliverables, it will be carried out in accordance with all applicable data protection legislation, including the GDPR and the Data Protection Act (Chapter 586, Laws of Malta).

Confidentiality with external users

Data collection for research purposed by the Department of Fisheries and Aquaculture and which is not personal data as provided by the Data Protection Act, Chapter 586 of the Laws of Malta and any other applicable laws in relation to personal data as in force from time to time in Malta.

In terms of data requested by end-users, all data processed and exchanged is considered as confidential amongst themselves and may only be disclosed subject to common written agreement between the parties in aggregated format.

References

Scientific, Technical and Economic Committee for Fisheries (STECF). 2015. Annual Economic Report on the EU Fishing Fleet (STECF-15-07). Publications Office of the European Union, Luxembourg, 434 pp. Retrieved from: https://stecf.jrc.ec.europa.eu/documents/43805/1034590/2015-07_STECF+15-07+-+AER+2015_JRCxxx.pdf

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. *'Sampling scheme' refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.* *'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.* *'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'.*
Sector name(s): Socio-economics data on Fisheries
Sampling scheme: Census
Variables: Consumption of fixed capital, Energy consumption, Energy costs, Full-time equivalent (FTE), Gross debt, Income from leasing out quota or other fishing rights, Investments in tangible assets (net purchase of assets), Lease/rental payments for quota or other fishing rights, Number of fishing enterprises/units, Operating subsidies, Other income, Other non-variable costs, Other variable costs, Paid labour, Personnel costs, Repair and maintenance costs, Subsidies on investments, Total hours worked per year (optional), Total value of assets, Unpaid labour, Value of physical capital, Value of quota and other fishing rights, Value of unpaid labour, Employment by age, Employment by employment status, Employment by gender, Employment by level of education, Employment by nationality, FTEs by gender, Unpaid labour by gender
Supra region(s): Mediterranean Sea and Black Sea
Survey planning
All of the economic and social variables listed above and as specified in Table 5a and Table 6 of Commission Delegated Decision 2019/910 will be collected through a questionnaire targeting 100% of the population, that is, all professional fishing vessels in the professional Maltese fishing fleet in in conformity with the Control Regulation (EC) No 1224/2009. This implies that the target population and frame population are the same. For economic and social variables, the population shall comprise of all active vessels registered in the Union Fishing Fleet Register as defined in Commission Implementing Regulation (EU) 2017/218 on 31 December of the reporting year and vessels that do not appear in the Register at that date but have fished at least one day during the reporting year.
Survey design and strategy

The data source for all social and economic variables listed above, excluding 'Number of fishing enterprises/units', 'Operating subsidies', 'Subsidies on Investment', 'Consumption of fixed capital', and 'Value of physical capital' shall be collected via an annual survey conducted on a one-to-one interview basis, with all the fishers for all the vessels in the population. A Census-based survey, which as specified in the 'Handbook on sampling design and estimation methods for economic data collection in fisheries statistics questionnaire' implies a survey directed to the entire population, remains the ideal data collection scheme method for Malta.

It is important to emphasise that these questionnaires are conducted on a voluntary basis, given the lack of a national legal framework for data collection covered for this workplan. Also given the lack of framework for the data collection of economic and social variables for the fisheries sector, fishers are not required to maintain data structured in a format ideal for the collection of the variables specified in Tables 7 and 9. This may therefore result in responses and achieved sample rates of less than 100% for the variables listed above for the identified segments/clusters listed in Table 5.1.

In cases of sold units, Malta shall attempt to conduct the survey with both the current and previous owner/s of the unit to ensure that the entire reference period is covered.

Other possibilities for not achieving a 100% sampling/response rate, other than refusals to participate in the annual survey, may be derived from deceased, unlocalisable and/or units which could not be carried out due to owner falling ill.

Estimation design

Given that the 100% target sampling rate/response for all the variables listed in Tables 7 and 9 may not always be attained for the applicable segments/clusters due to the constraints provided above, these unattained unit and the respective variables shall be estimated using imputation techniques in line with the 'Handbook on sampling design and estimation methods for economic data collection in fisheries statistics questionnaire.' For treatment of nonresponse, Malta currently uses hot-deck imputation along with regression imputation techniques, depending on the variable type and the respective nonresponse rate. R Scripts shall be used to ensure that the imputation carried out is robust and does not negatively impact aggregation. Malta is continuously developing and exploring imputation techniques to enhance the quality of its data set, and such changes will be reflected in the upcoming Work Plans.

The variable 'Value of physical capital' and 'consumption of physical capital' shall be estimated using the Perpetual Inventory Method (PIM), this estimation shall be applied to both active and inactive units. Variables to enable this estimation shall be obtained using a combination of survey-based data collection and administrative sources. The variable value of physical capital shall also contribute to the calculation of the variable 'Total value of assets'. This variable shall be derived using the value of physical capital and the data collected for investments made (i.e. the capital expenditure incurred) during the reference year through the annual survey.

The variables 'Full-time equivalent (FTE)' and 'FTEs by gender' shall be calculated against the national threshold of 2,080 hours per FTE and shall use relevant variables collected through the annual survey to determine the value for FTE. The calculations shall follow the most recent guidelines provided in the Guidance Document for the Fishing Fleet and the Guidance Document for the Social Variables developed by RCG ECON.

The variable 'Value of Unpaid Labour' shall be derived from relevant variables collected through the annual survey and by following the calculation specified in the most recent guidelines provided in the Guidance Document for the Fishing Fleet.

The variables 'Number of fishing enterprises/units', 'Operating subsidies', and 'Subsidies on Investment' shall be sourced through administrative sources mainly the Department of Fisheries and Aquaculture and the Ministry for Agriculture, Fisheries, Food and Animal Rights or any other relevant entities within the public sector of Malta.

References

Guidance Document for the Fishing Fleet -
https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/fleet

Guidance Document for the Social Variables -
https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/social

Harmonization of methodologies for sampling design and estimation methods for fleet and aquaculture economic data collection -
https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/handbook-on-methodology

Error checks

Data quality checking is carried out by officers responsible for the collection of social and economic data. Manual checks shall be carried at data inputting stage and information collected may be cross-checked directly with fishers where necessary. Post-data inputting Manual checks and R scripts will be used to identify and possibly remove any outliers to ensure quality data submissions. Where possible, cross-checks against administrative sources that allow comparability of certain variables shall also be used.

Additionally, targeting and attempting to survey 100% of the population, should assure certain degrees of precision in the data set. In order to ensure consistency, the same type of data collection methods will be used year on year to collect data on the respective economic variables for the period of this Work Plan.

Data storage and documentation

Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system. The Department of Fisheries and Aquaculture has initiated the transitioning phase to a fully-fledged web-based database system. There are currently discussions at the regional level to set up a regional database, whereby Malta is an active participant in the Regional Coordination Group (RCG) meetings.

Additional methodological documentation can be accessed via the Department of Fisheries and Aquaculture website via the following link:
https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Revision

Methodological reviews are expected to be conducted following the end of the Work Plan period i.e. 2024, although recommendations given by RCG ECON will be reviewed and implemented where applicable.

Confidentiality

Confidentiality Policy

The necessary administrative, logical and physical measures are adopted in order to effectively protect the confidentiality of data from the data collection and until its publication, as well as its storage.

Where the DFA is required to process personal data (as defined in Regulation (EU) 2016/679, the 'GDPR') for the performance, implementation and execution of its deliverables, it will be carried out in accordance with all applicable data protection legislation, including the GDPR and the Data Protection Act (Chapter 586, Laws of Malta).

Confidentiality with External Users

Data collection for research purposed by the Department of Fisheries and Aquaculture and which is not personal data as provided by the Data Protection Act, Chapter 586 of the Laws of Malta and any other applicable laws in relation to personal data as in force from time to time in Malta.

In terms of data requested by end-users, all data processed and exchanged is considered as confidential amongst themselves and may only be disclosed subject to common written agreement between the parties.

Aggregated economic and social data on the fisheries sector shall be disclosed fully with the Malta's National Statistics Office as required by the Malta Statistics Authority Act and Regulation EC 2015/759 and as stated in the Memorandum of Understanding between the National Statistics Office and the Department of Fisheries and Aquaculture, dated 27/05/2020.

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. *'Sampling scheme' refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.* *'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.* *'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'.*
Sector name(s): Aquaculture
Sampling scheme: Census
Variables: Consumption of fixed capital, Energy costs. Financial expenditures, Financial income, Fish feed used, Full-time equivalent (FTE), Gross debt, Gross sales per species, Investments in tangible assets (net purchase of assets), Livestock used, Number of enterprises by size category, Number of hours worked by employees and unpaid workers (optional), Operating subsidies, Other income, Other operating costs, Paid labour, Personnel costs, Raw material: feed costs, Raw material: livestock costs, Repair and maintenance costs, Subsidies on investments, Total value of assets, Unpaid labour, Value of unpaid labour, Weight of sales per species, Employment by age, Employment by employment status, Employment by gender, Employment by level of education, Employment by nationality, FTEs by gender, and Unpaid labour by gender.
Supra region(s): Mediterranean Sea and Black Sea
Survey planning
The population for the collection of economic and social data in the aquaculture sector includes all enterprises whose primary activity is defined according to the European classification of economic activities NACE codes 03.21 and 03.22 and who operate for profit. The population for collection of this data will be the aquaculture enterprises registered with the Department of Fisheries and Aquaculture within the Ministry for Agriculture, Fisheries, Food, and Animal Rights. Economic data will be collected on an annual basis while social data will be collected every three years.
Survey design and strategy
Postal/electronic questionnaires will be sent to all aquaculture operators to collect all the variables requested. The frame population of aquaculture operators will be derived from a count of the number of enterprises registered. Dormant units will be excluded. This statistic will include all units active during at least a part of the reference period. This implies that the survey is targeting 100% of the population, although not all the fish farms forming part of the total population will be part of the survey to be conducted given that two of the eight registered aquaculture farms are inoperative. It is important to emphasise that these questionnaires are conducted on a voluntary basis, given the lack of a national legal framework for data collection under this workplan. This may therefore result in responses and achieved sample rates of less than 100% for the variables listed above. Aquaculture farms in Malta can be segmented into three segments according to the species farmed and technique used namely: sea bream and sea bass cages, Tuna cages and other marine fish cages. The main species farmed include Atlantic bluefin tuna, sea bass, sea bream, meagre and amberjack.
Estimation design

Given that the 100% target sampling rate/response for all the variables listed in Tables 6 and 7 may not always be attained for the applicable segments due to the constraints provided above, these unattained unit and the respective variables shall be estimated using imputation techniques in line with the *'Handbook on sampling design and estimation methods for economic data collection in fisheries statistics questionnaire.'* For treatment of nonresponse, Malta currently uses hot-deck imputation along with regression imputation techniques, depending on the variable type and the respective nonresponse rate. R Scripts shall be used to ensure that the imputation carried out is robust and does not negatively impact aggregation. Malta is continuously developing and exploring imputation techniques to enhance the quality of its data set, and such changes will be reflected in the upcoming Work Plans.

Calculations for imputed values shall follow the most recent guidelines provided in the Guidance Document for the Aquaculture and the Guidance Document for the Social Variables developed by RCG ECON.

References

Harmonization of methodologies for sampling design and estimation methods for fleet and aquaculture economic data collection - https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/handbook-on-methodology

Guidance Document for the Aquaculture - https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/aqua

Guidance Document for the Social Variables - https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/social

Error checks

Data quality checking is carried out by officers responsible for the collection of social and economic data. Manual checks shall be carried at data inputting stage and information collected may be cross-checked directly with fishers where necessary. Post-data inputting Manual checks and R scripts will be used to identify and possibly remove any outliers to ensure quality data submissions. Where possible, cross-checks against administrative sources that allow comparability of certain variables shall also be used.

Additionally, targeting and attempting to survey 100% of the population, should assure certain degrees of precision in the data set. In order to ensure consistency, the same type of data collection methods will be used year on year to collect data on the respective economic variables for the period of this work plan.

Data storage and documentation

Progress has begun on obtaining a fully-fledged database, in order to transit from the current data storage system. The Department of Fisheries and Aquaculture has initiated the transitioning phase to a fully-fledged web-based database system. There are currently discussions at the regional level to set up a regional database, whereby Malta is an active participant in the Regional Coordination Group (RCG) meetings.

Additional methodological documentation can be accessed via the Department of Fisheries and Aquaculture website via the following link: https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Revision

Survey is carried out annually. The population shall be determined using internal sources within the Department of Fisheries and Aquaculture, pre-distribution of the survey, to determine which aquaculture operators where active during the reference year.

Methodological reviews are expected to be conducted following the end of the Work Plan period i.e. 2024, although recommendations given by RCG ECON will be reviewed and implemented where applicable.

Confidentiality

Confidentiality Policy

The necessary administrative, logical and physical measures are adopted in order to effectively protect the confidentiality of data from the data collection and until its publication, as well as its storage.

Where the DFA is required to process personal data (as defined in Regulation (EU) 2016/679, the 'GDPR') for the performance, implementation and execution of its deliverables, it will be carried out in accordance with all applicable data protection legislation, including the GDPR and the Data Protection Act (Chapter 586, Laws of Malta).

Confidentiality with External Users

Data collection for research purposed by the Department of Fisheries and Aquaculture and which is not personal data as provided by the Data Protection Act, Chapter 586 of the Laws of Malta and any other applicable laws in relation to personal data as in force from time to time in Malta.

In terms of data requested by end-users, all data processed and exchanged is considered as confidential amongst themselves and may only be disclosed subject to common written agreement between the parties.

Aggregated economic and social data on the aquaculture sector shall be disclosed fully with the Malta's National Statistics Office as required by the Malta Statistics Authority Act and Regulation EC 2015/759 and as stated in the Memorandum of Understanding between the National Statistics Office and the Department of Fisheries and Aquaculture, dated 27/05/2020.

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. *'Sampling scheme' refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.* *'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.* *'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'.*
Sector name(s): Fish Processing
Sampling scheme: Census
Variables: Consumption of fixed capital, Energy costs, Financial expenditures, Financial income, Full-time equivalent (FTE), Gross debt, Gross investments, Number of enterprises, Number of enterprises by size category, Number of hours worked by employees and unpaid workers (optional), Number of persons employed, Operating subsidies, Other income, Other operating costs, Payment for external agency workers, Personnel costs, Purchase of fish and other raw material for production, Subsidies on investments, Total value of assets, Turnover, Unpaid labour, Value of raw material by country of origin (domestic, other EU or non-EU), Value of raw material by production environment (capture based fishery and aquaculture sector), Value of raw material by species, Value of raw material by type of processed material (fresh, frozen and semi processed materials), Value of unpaid labour, Weight of raw material by country of origin (domestic, other EU or non-EU), Weight of raw material by production environment (capture based fishery and aquaculture sector), Weight of raw material by species, Weight of raw material by type of processed material (fresh, frozen and semi processed materials), Weight of sales per species, Employment by age, Employment by employment status, Employment by gender, Employment by level of education, Employment by nationality, FTEs by gender, Unpaid labour by gender, Number of Enterprises (non-main), Turnover attributed to fish processing (non-main)
Supra region(s): Mediterranean Sea and Black Sea
Survey planning
The population for the collection of economic and social data will be based on enterprises entailed in processing fisheries products as recorded in the Maltese Business Directory. Both 'Main activity' and 'Non-main activity' enterprises will be derived using this methodology. Economic data will be collected on an annual basis whereas social data shall be collected every three years.
Survey design and strategy
Postal/Electronic questionnaires will be sent to all fish processing enterprises to collect all the variables requested. The implies that all economic and social variables for the fish processing industry, both for enterprises segmented under 'main activity' and 'non-main activity' will be collected through a census whereby all fish processing companies in the population will be surveyed. The frame and target population in this case will not differ. It is important to emphasise that these questionnaires are conducted on a voluntary basis, given the lack of a national legal framework for data collection under this workplan. This may therefore result in responses and achieved sample rates of less than 100% for the variables listed above.
Estimation design

Given that the 100% target sampling rate/response for all the variables listed in Tables 10 and 6 may not always be attained for the applicable segments due to the constraints provided above, these unattained unit and the respective variables shall be estimated using imputation techniques in line with the *'Handbook on sampling design and estimation methods for economic data collection in fisheries statistics questionnaire.'* For treatment of nonresponse, Malta currently uses hot-deck imputation along with regression imputation techniques, depending on the variable type and the respective nonresponse rate. R Scripts shall be used to ensure that the imputation carried out is robust and does not negatively impact aggregation. Malta is continuously developing and exploring imputation techniques to enhance the quality of its data set, and such changes will be reflected in the upcoming Work Plans.

Calculations for imputed values shall follow the most recent guidelines provided in the Guidance Document for the Fish Processing and the Guidance Document for the Social Variables developed by RCG ECON.

References

Harmonization of methodologies for sampling design and estimation methods for fleet and aquaculture economic data collection - https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/handbook-on-methodology

Guidance Document for the Fish Processing - https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/proind

Guidance Document for the Social Variables - https://datacollection.jrc.ec.europa.eu/guidelines/socioeco/social

Error checks

Data quality checking is carried out by officers responsible for the collection of social and economic data. Manual checks shall be carried at data inputting stage and information collected may be cross-checked directly with fishers where necessary. Post-data inputting Manual checks and R scripts will be used to identify and possibly remove any outliers to ensure quality data submissions. Where possible, cross-checks against administrative sources that allow comparability of certain variables shall also be used.

Additionally, targeting and attempting to survey 100% of the population, should assure certain degrees of precision in the data set. In order to ensure consistency, the same type of data collection methods will be used year on year to collect data on the respective economic variables for the period of this Work Plan.

Data storage and documentation

The Department of Fisheries and Aquaculture has initiated the transitioning phase to a fully-fledged web-based database system. There are currently discussions at the regional level to set up a regional database, whereby Malta is an active participant in the Regional Coordination Group (RCG) meetings.

Additional methodological documentation can be accessed via the Department of Fisheries and Aquaculture website via the following link:
https://agrikoltura.gov.mt/en/fisheries/Pages/researchUnit.aspx

Revision

Methodological reviews are expected to be conducted following the end of the Work Plan period i.e. 2024, although recommendations given by RCG-Econ will be reviewed and implemented where applicable.

Confidentiality

Confidentiality Policy

The necessary administrative, logical and physical measures are adopted in order to effectively protect the confidentiality of data from the data collection and until its publication, as well as its storage.

Where the DFA is required to process personal data (as defined in Regulation (EU) 2016/679, the 'GDPR') for the performance, implementation and execution of its deliverables, it will be carried out in accordance with all applicable data protection legislation, including the GDPR and the Data Protection Act (Chapter 586, Laws of Malta).

Confidentiality with External Users

Data collection for research purposed by the Department of Fisheries and Aquaculture and which is not personal data as provided by the Data Protection Act, Chapter 586 of the Laws of Malta and any other applicable laws in relation to personal data as in force from time to time in Malta.

In terms of data requested by end-users, all data processed and exchanged is considered as confidential amongst themselves and may only be disclosed subject to common written agreement between the parties.