

Department of Fisheries and Aquaculture  
Ministry for Agriculture, Fisheries and Animal Rights

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

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 Implementing Decision (EU) 2016/1251**

adopting a multiannual Union programme for the collection, management and use of data in  
the fisheries and aquaculture sectors for the period 2017-2019

**Commission Implementing Decision (EU) 2016/1701**

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

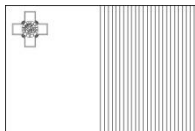
**Commission Implementing Decision (EU) 2018/1283**

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

**Malta Annual Report for data collection in  
the fisheries and aquaculture sectors**

**2019**

Version 2 – 2020



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*Investing in sustainable fisheries and aquaculture*



Malta, June 2020

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## SECTION 1: BIOLOGICAL DATA

### Text Box 1C: Sampling intensity for biological variables

General comment: This box fulfils paragraph 2 point (a)(i)(ii)(iii) of Chapter III, Chapter IV of the multiannual Union programme and Article 2, Article 4 paragraph 1 and Article 8 of the Decision (EU) 2016/1701. This box is applicable to the Annual Report.

Member State should provide by Region/RFMO/RFO/IO:

#### 1. Evidence of data quality assurance

Evidence of data quality is provided in Table 5A. Biological sampling was carried out as detailed in Text Box 4A of the DC-MAP Work Plan (2019) and in the internal document entitled “Biological Sampling Methodology.”

In summary, stock-based sampling is carried out for *Coryphaena hippurus*, *Thunnus thynnus* and *Xiphias gladius*. The number of samples required for each parameter: length, weight, sex, maturity and age for these species were agreed upon at the RCM-Med&BS 2016 meeting. For all other species listed in Tables 1C, data is collected concurrently from onboard observations and market sampling following national protocols, and from surveys at sea following the MEDITS protocol. The sampled métiers were selected using the ranking methodology, and the required type and frequency of measurements were those agreed upon at the RCM-Med&BS 2016 meeting. The target number of measurements by species and parameter was based on previous sampling. Data quality checks and data validation exercises for all sampling were executed during data entry, import and processing and before transmission to end-users.

#### 2. Deviations from the Work Plan

Detailed comments by species and parameter are provided in Table 1C. In summary the following deviation were observed:

1. The inflated number of samples for lengths and weight for *Xiphias gladius* were collected through métier-based sampling as per Table 4A of the Work Plan and from measurements taken at the fish market. The number of yearly planned minimum number of samples for sex, maturity and ages were exceeded in order to achieve the regional planned minimum number of samples required over the triennial period 2017-2019. In previous years, difficulties were encountered to collect the required samples.
2. Difficulties were encountered to collect the maturity parameters for *Thunnus thynnus*.
3. As per Work Plan, data for all other species in Table 1C was collected concurrently from métier-based sampling and from the MEDITS survey. As a result, the planned minimum number of measurements was in some cases either exceeded or not achieved, since the number is dependent on the catches. These cases are summarised below:

The minimum planned number of length measurements, and in some cases weight measurements, was exceeded for the following species: *Merluccius merluccius*, *Mullus barbatus* and *Mullus surmuletus*, *Raja clavata*, *Trachurus trachurus*, *Nephrops norvegicus* and *Parapenaeus longirostris*. These species are mostly caught by trawlers and samples were collected through onboard observations, market sampling and from the MEDITS survey.

The minimum planned number of length measurements for *Thunnus alalunga* was exceeded; the samples were collected from the fish market and no extra costs were incurred.

The minimum planned numbers of weight, sex and maturity measurements were not achieved for *Scomber* spp. and *Sardinella aurita*. These species are mostly caught by purse seiners, which are

sampled through both onboard observations and market sampling; the weight, sex and maturity measurements are taken from market samples.

The planned minimum numbers of measurements from the MEDITS survey were, in some cases, not achieved or exceeded. As indicated in Table 1C, samples from surveys are collected as per MEDITS protocol.

3. Actions to avoid deviations.

1. The inflated number of samples of *Xiphias gladius* were required in order to meet the regional number of required samples over the triennial period 2017-2019. In previous years, difficulties were encountered to obtain the required samples; this was mitigated, and the samples required over the triennial period were achieved.
2. Effort is made by Malta to collect the required number of maturity measurements for *Thunnus thynnus* in 2020.
3. For trawlers and purse-seiners, data is collected through both onboard observations and market sampling; this is done in order to obtain information on catch composition and discards as well as to achieve the required number of samples. In case of species caught by trawlers, further information on lengths and weights is also collected through the MEDITS survey.

## SECTION 1: BIOLOGICAL DATA

### Text Box 1D - Recreational fisheries

General comment: This box fulfills paragraph 2 point (a) (iv) of Chapter III of the multiannual Union programme and Article 2, Article 3 and Article 4 paragraph 1 of the Decision (EU) 2016/1701. This box is applicable to the Annual Report. This box is intended to provide information on the design, implementation and analysis of all components of sampling schemes/ surveys that are listed in Table 1D.

#### 1. Description of the target population

Malta has fishing licenses for vessels engaged in recreational fisheries. The target population of the pilot study is a sample of the recreational vessels population.

#### 2. Type of survey

The pilot study on recreational fisheries consists of a probability sampling survey of approximately 10% of the vessels having fishing licenses for recreational fisheries. The survey was conducted through face to face interviews.

#### 3. Data Quality

Non-responses and refusals are documented.

#### 4. Data Analysis and processing

The pilot study on recreational fisheries was finalised in the first quarter of 2019. As per RCG Med&BS 2019 Recommendation 2, following the finalisation of the pilot studies by all of the Mediterranean and Black Sea Member States, regional coordination for data collection will be required to ensure that data provided are at the required spatial resolution, temporal overage and quality in order to support scientific advice and management. Malta will continue to participate in any planned future workshops on recreational fisheries for the Mediterranean Basin.

Does the estimation procedure follow the survey design?

Yes

Has the precision of the estimates been calculated and documented?

Yes

SECTION 1: BIOLOGICAL DATA

**Pilot Study 1: Relative share of catches of recreational fisheries compared to commercial fisheries**

General comment: This box fulfils paragraph 4 of Chapter V of the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (a) of the Decision (EU) 2016/1701.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study.

1. Aim of pilot study

The aim of the pilot study is to assess the share of catches from recreational fisheries in relation to commercial fisheries. Specifically, the aim of this pilot study is to determine which species from Table 3 of the Commission Implementing Decision (EU) 2016/1251 are removed from the sea by the recreational fisheries, to determine the total removal of these species from the sea by the recreational fisheries, and to evaluate the biomass of the species caught.

2. Duration of pilot study

The first phase of the pilot study will be carried out between the 1 January 2017 and end of December 2017. The results of the first phase of the pilot study will then be used for planning the second phase of the pilot study (ending December 2018), in which a trial run of the actual data collection procedure will be carried out.

3. Methodology and expected outcomes of pilot study

Malta has fishing licenses for vessels carrying out recreational fisheries. The table below shows the species listed in Table 3 of the Commission Implementing Decision (EU) 2016/1251 and whether they are caught from the shore and/or by boats.

Species	Species caught by commercial fisheries in the reference years (2013-2015)	Caught from the shore	Caught from vessels	Depth range of species (m) (Froese, & Pauly, 2016).
Demersal elasmobranchs	Y	N	Y	
Pelagic elasmobranchs	Y	N	Y	
<i>Katsuwonus pelamis</i>	Y	N	Y	0 - 260
<i>Thunnus alalunga</i>	Y	N	Y	0 - 600
<i>Thunnus thynnus</i>	Y	N	Y	0 - 985
<i>Xiphias gladius</i> <sup>1</sup>	Y	N	Y	0 - 800
<i>Prionace glauca</i>	Y	N	Y	1 - 1000

<sup>1</sup> In Malta no recreational vessels are authorised to fish for swordfish.

<i>Auxis rochei</i>	Y	N	Y	10 - NA
<i>Sarda sarda</i>	Y	N	Y	80 - 200
<i>Euthynnus alleteratus</i>	Y	N	Y	1 - 150
<i>Auxis thazard</i>	Y	N	Y	50 - NA
<i>Coryphaena hippurus</i>	Y	N	Y	0 - 85
<i>Anguilla anguilla</i>	N	NA	NA	
<i>Thunnus albacares</i>	N	NA	NA	
<i>Thunnus obesus</i>	N	NA	NA	
<i>Makaira nigricans (or mazara)</i>	N	NA	NA	
<i>Istiophorus albicans</i>	N	NA	NA	
<i>Kajikia albida</i>	N	NA	NA	
<i>Thunnus atlanticus</i>	N	NA	NA	
<i>Orcynopsis unicolor</i>	N	NA	NA	
<i>Scomberomorus brasiliensis</i>	N	NA	NA	
<i>Scomberomorus regalis</i>	N	NA	NA	
<i>Scomberomorus cavalla</i>	N	NA	NA	
<i>Scomberomorus tritor</i>	N	NA	NA	
<i>Scomberomorus maculatus</i>	N	NA	NA	
<i>Acanthocybium solandri</i>	N	NA	NA	

The table shows that none of the species listed are caught from the shore. Spearfishing was also considered, but none of the species concerned are targeted by this type of recreational fishing. In Malta there is no recreational fishing targeting blue shark and elasmobranchs.

Therefore, although the RCM Med&BS 2016 recommended that the target population shall consist of all types of recreational fishing, due to the reasons presented above, Malta will be only carrying out a pilot study on recreational vessels.

The pilot study will be carried out in two phases. The first phase shall consist of a survey conducted through interviews; the core variables (number of heads and weight per species caught in a month) will be collected. Additionally, a number of other variables, for example seasonality, will be collected in order to aid the planning and sampling design for the eventual collection of the required variables with regard to recreational fisheries. The second phase of the pilot study will consist of a trial run of the actual data collection procedure so that any problems encountered can be mitigated in the year of the actual collection of this data (2018).

The resultant data is to be made available by end of May 2019.

The expected outcomes of the pilot study is the identification of the species from Table 3 of the Commission Implementing Decision (EU) 2016/1251 which are important for the recreational fisheries sector, as well as the identification of the relevant main gears used and the respective fishing seasons.

If the relative share of catches of recreational fishing in relation to commercial catches is found to be insignificant, following regional consensus, it will be omitted from future data collection schemes.

References:

Froese, R. & Pauly, D. Editors. (2016). FishBase. version (06/2016). World Wide Web electronic publication. URL: [www.fishbase.org](http://www.fishbase.org)

Brief description of the results obtained (including deviations from planned and justifications as to why if this was not the case).

Malta carried out the pilot study on vessels having fishing licenses for carrying out recreational fisheries in two phases; the first phase of the pilot study (reference year 2017) were used in order to plan the second phase of the pilot study (reference year 2018). The data of the pilot study was compiled and finalised by the first quarter of 2019.

The pilot study consisted of a survey conducted through in-person interviews with recreational fishers; the core variables (number of heads and weight per species caught in a month) together with other additional variables, such as seasonality, were collected.

4. Achievement of the original expected outcomes of pilot study and justification if this was not the case.

The expected outcomes of the pilot study is the identification of the species from Table 3 of the Commission Implementing Decision (EU) 2016/1251 which are important for the recreational fisheries sector, as well as the identification of the relevant main gears used and the respective fishing seasons.

5. Incorporation of results from pilot study into regular sampling by the Member State.

Malta has finalised the pilot study on recreational fisheries. As per RCG Med&BS 2019 Recommendation 2, the pilot studies by each Mediterranean and Black Sea Member State need to be finalised and their outcomes assessed. Such data will be used in order to generate possible plans for regular data collection, as well as to identify survey methods and data to be collected and adapted to the specific situation of each MS, on the basis of end user needs. Regional coordination for data collection is required; to this end, Malta will continue to participate in the workshop for recreational fisheries and follow its recommendations.



SECTION 1: BIOLOGICAL DATA

**Text Box 1E: Anadromous and catadromous species data collection in fresh water**

General comment: This box fulfills paragraph 2 points (b) and (c) of Chapter III of the multiannual Union programme and Article 2 of the Decision (EU) 2016/1701.

General comment: This box is applicable to the Annual Report.

1. Method selected for collecting data.

NA

2. Were the planned number achieved? Yes/ No

NA

## SECTION 1: BIOLOGICAL DATA

### **Text box 1F: Incidental by-catch of birds, mammals, reptiles and fish**

General Comment: This box fulfils paragraph 3 point (a) of Chapter III of the multiannual Union programme and Article 2 of the Decision (EU) 2016/1701. This box is applicable to the Annual Report. This box is applicable only for those sections where Member States have reported that they have been carrying out regular sampling. Results and deviations for Pilot studies should be reported under Pilot Study 2.

#### 1. Results

In 2019, Malta used the observers onboard for the collection of biological data to collect data on the incidental by-catch of birds, mammals, reptiles and fish, as part of Pilot Study 2 (Level of fishing and impact of fisheries on biological resources and marine ecosystem), as per RCM Med&BS 2016 recommendation. The results of the data collected so far through this pilot study are not applicable under this Text Box since Text Box 1F is applicable only for those sections where Member States have reported that they have been carrying out regular sampling.

#### 2. Deviations from Work Plan

NA

#### 3. Data quality

- Does the onboard observer protocol contain a check for rare specimens in the catch at opening of the codend?

NA

If YES is the observer instructed to indicate if the codend was NOT checked in a haul?

NA

- In gill nets - and hook-and-line fisheries: does the onboard observer protocol instruct the observer to indicate how much of the hauling process has been observed for (large) incidental bycatches which never came on board (because they fall out of the net)? 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"?

NA

-Does the onboard observer protocol instruct to report on the use of mitigation (i.e. Escape Devices or Acoustic Deterrent Devices)?

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.

NA

- Are data quality issues taken into account?

Yes

NA

- How are data (and samples) stored

NA

## SECTION 1: BIOLOGICAL DATA

### **Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem**

General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (b) of the Decision (EU) 2016/1701.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study.

*For all types of fisheries, incidental by-catch of all birds, mammals and reptiles and fish protected under Union legislation and international agreements, including the species listed in Table 1D, including absence in the catch, during scientific observer trips on fishing ships or by the fishers themselves through logbooks (pursuant to Chapter III, 3(a) of the Commission Implementing Decision (EU) 2016/1251).*

Following the 2016 Recommendation of RCM Med&BS-LP on pilot studies for the assessment of incidental catches of birds, mammals, reptiles and fish, the RCG Med&BS-LP 2017 has agreed to carry out the following pilot studies:

- 2018: Pilot study for assessing incidental catches of vulnerable species from bottom trawlers
- 2019: Pilot study for assessing incidental catches of vulnerable species from longlines
- 2020: Pilot study for assessing incidental catches of vulnerable species from set nets (gillnets).

The proposed métiers and year of sampling are in agreement with the GFCM planned incidental catch sampling programme which will be performed in the period 2018-2020 (Mid-term strategy (2017–2020) towards the sustainability of Mediterranean and Black Sea fisheries).

#### 1. Aim of pilot study

The aim of the pilot studies are to assess the impact of main fisheries on the vulnerable species and to collect accurate information on these species in terms of quantities, gears, temporal and spatial areas.

#### 2. Duration of pilot study

Each pilot study related to the selected métier will have a duration of one year.

#### 3. Methodology and expected outcomes of pilot study

In overall, the methodology that will be followed for collecting data on incidental catch includes the collection of data from:

- Observer programmes for the identified fleet
- Logbook completion by fishers
- Interviews with fishers.

The guidelines for monitoring incidental catch of vulnerable species and processing the collected data, will be based both on the outputs of the EU MARE/2014/19 project for the Med&BS, and the GFCM guidelines on

incidental catch (under preparation). Data to be collected will include: identification of species, number and weight (when possible) of individuals, gear specifications, location and timing of catches.

#### **Expected outcomes**

With the implementation of the planned pilot studies, it is expected that accurate information will be collected on the species incidentally caught, as well as their quantities, locations and the timing of such catches. This information will increase the knowledge on incidental catch in the region. Based on the results, systematic monitoring programme may be proposed for certain métiers/areas.

The knowledge gained under the pilot study and possible future systematic sampling will be very useful for the formulation of possible management measures for minimising incidental catch of vulnerable species in the region.

Brief description of the results obtained (including deviations from planned and justifications as to why if this was not the case).

When onboard, Malta has been collecting data about these incidental catches since January 2017.

#### **4. Achievement of the original expected outcomes of pilot study and justification if this was not the case**

In 2019, Malta made use of the observers onboard for the collection of biological data in order to also collect data on the incidental by-catch of birds, mammals, reptiles and fish. The observer checks for any incidental by-catches and/or rare species at opening of the codend. Malta's protocol follows the recommendations by the GFCM: FAO. 2019. *Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection*. FAO Fisheries and Aquaculture Technical Paper No. 640. Rome, FAO.

#### **5. Incorporation of results from pilot study into regular sampling by the MS**

With the implementation of the planned pilot studies, it is expected that accurate information will be collected on the species incidentally caught, as well as their quantities, locations and the timing of such catches. This information will increase the knowledge on incidental catch in the region. Based on the results, systematic monitoring programme may be proposed for certain métiers/areas.

The knowledge gained under the pilot study and possible future systematic sampling will be very useful for the formulation of possible management measures for minimising incidental catch of vulnerable species in the region.

## Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem

General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (b) of the Decision (EU) 2016/1701.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study.

*Data for estimating the level of fishing and the impact of fishing activities on marine biological resources and on marine ecosystems, such as effects on non-commercial species, predator-prey relationships and natural mortality of fish species in each marine region (pursuant to Chapter III, 3(c) of the Commission Implementing Decision (EU) 2016/1251).*

### 1. Aim of pilot study

The aim is to estimate the level of fishing and the impact of fishing activities on marine biological resources and on marine ecosystems.

### 2. Duration of pilot study

NA

### 3. Methodology and expected outcomes of pilot study

RCM Med&BS 2016 noted that to date, no end-user indicated the need of such data. In the case of such requirements, the methodology as outlined by the MARE/2014/19 Project with regard to stomach content analysis can be followed.

RCM Med&BS 2016 also notes that the following three indicators outlined by the MARE/2014/19 Project can be calculated from the data available if and when there is a request from end-users:

- (i) Typical length
- (ii) Kempton  $Q_{75}$  index
- (iii)  $N_{90}$  index

Brief description of the results obtained (including deviations from planned and justifications as to why if this was not the case).

NA. Malta will follow the RCG Med&BS 2019 Recommendation 6 by implementing the monitoring of fish stomach content following the protocols provided by the STREAM project by the established deadline of 2021.

### 4. Achievement of the original expected outcomes of pilot study and justification if this was not the case

NA

5. Incorporation of results from pilot study into regular sampling by the MS

NA

SECTION 1: BIOLOGICAL DATA

**Text Box 1G: List of research surveys at sea**

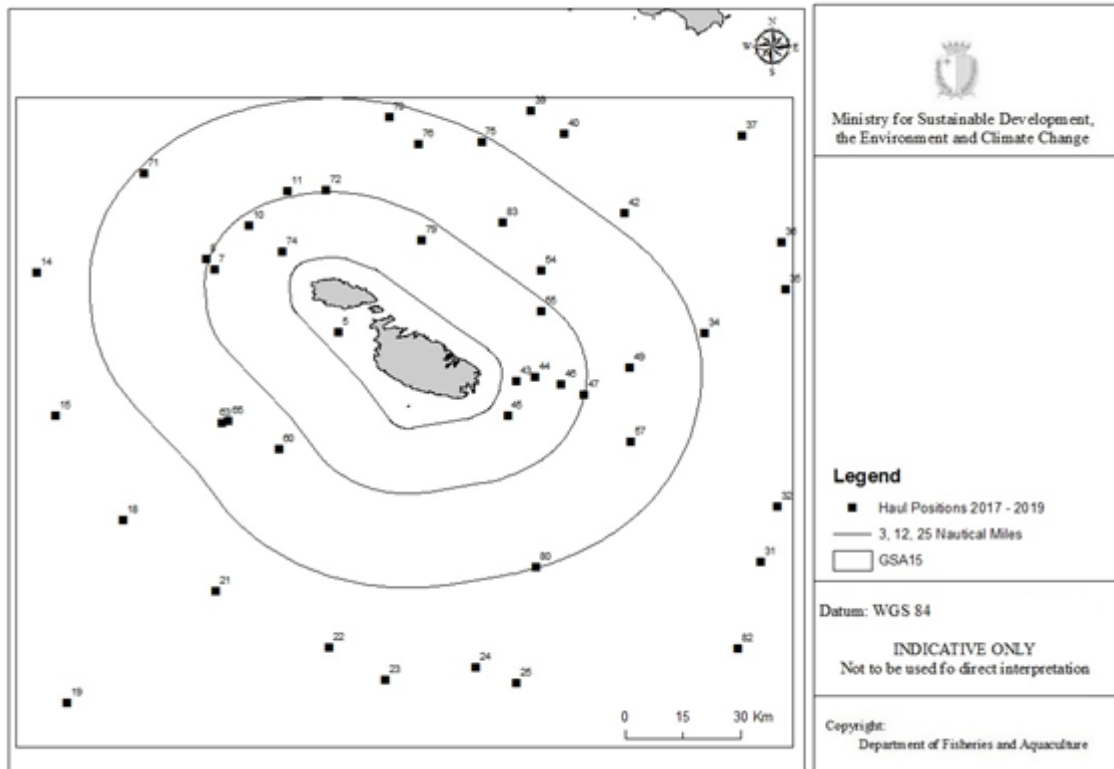
General comment: This box fulfills Chapter IV of the multiannual Union programme and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701. It is intended to specify which research surveys at sea set out in Table 10 of the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Table 10 of the multiannual Union programme or whether it is an additional survey.

General comment: This box is applicable to the Annual Report. This box should provide complementary information on the performance of the surveys, the results and their main use.

1. Objectives of the survey

The aim of this survey is to produce basic information on benthic and demersal species in terms of life history traits, population and community distribution and demographic structure through harmonized sampling of demersal resources in the Mediterranean Sea (MEDITS Working Group, 2016).

2. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map)



**Figure 1 Graphical representation of the MEDITS stations in GSA 15.**

Malta will carry out the MEDITS in GSA 15, following the MEDITS Instruction Manual (MEDITS Handbook Version 9, 2017). 45 stations are sampled (Figure 1) using the IFREMER GOC73 bottom trawl net of width 22 m; height of vertical opening 2 m, length 40 m with a stretched mesh size at cod-end of 20 mm. The hauls are



kept constant for year to year and were initially positioned following a depth stratified sampling scheme with random drawing of the positions within each depth stratum.

Since the same vessel and crew shall be used every year in order to reduce variations between years due to vessel effect (MEDITS Handbook Version 9, 2017), the necessary procurement approvals will be sought so that MEDITS in GSA15 will be held using the vessel “Degre” as done in the past six years (2014-2019).

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 *Epinepheus* 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 should be collected.

This list was split into two groups:

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

MEDITS is included in Table 10 of the Commission Implementing Decision (EU) 2016/1251. The latest (2017)

MEDITS Instruction Manual can be retrieved from:  
<http://www.sibm.it/MEDITS%202011/principale%20project.htm>.

3. For internationally coordinated surveys, describe the participating Member States/ vessels and the relevant international group in charge of planning the survey

The MEDITS Steering Committee is the reference entity of the MEDITS group, which validates all the decisions taken in the name of the MEDITS group. It endorses the terms of reference, timings and agendas of the MEDITS sessions. It ratifies the conclusions and recommendations elaborated by the group.

The participating Member States and the vessels used in the execution of the MEDITS since its inception are listed in Annex I of the MEDITS Instruction Manual (MEDITS Handbook Version 9, 2017).

4. Where applicable, describe the international task-sharing (physical and/or financial) and the cost-sharing agreement used

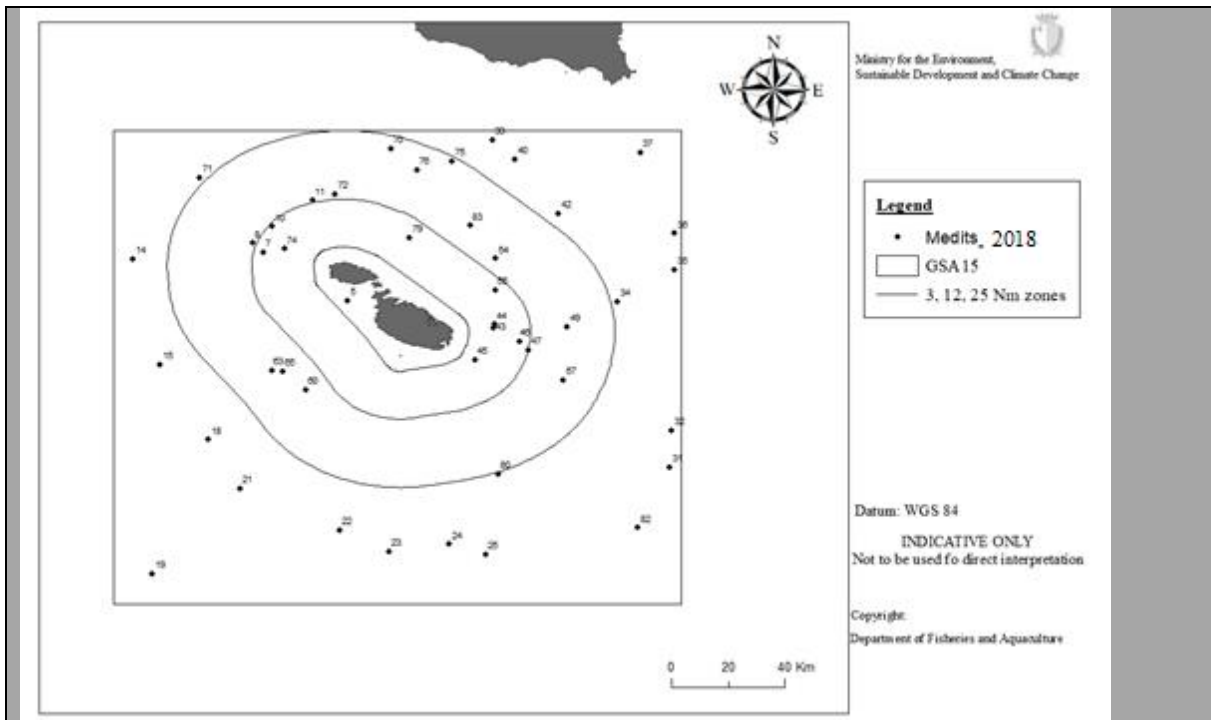
Both physical task sharing and financial cost sharing taking place between participating countries are indicated in Annex III of MEDITS Instruction Manual (MEDITS Handbook Version 9, 2017).

5. Explain where thresholds apply

In view of the data required for the current 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 but will keep on collecting data through the MEDITS.

6. Graphical representation (map) showing the positions (locations) of the realized samples.

A map presenting the spatial distribution of the MEDITS sampling hauls in GSA 15 in 2019 is shown in Figure 2.



**Figure 2. Graphical representation showing positions of the realized MEDITS samples in 2019**

7. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.

The Medits Steering Committee 2019 was held in March; presently the latest meeting report is not yet published. The MEDITS international coordination reports can be accessed through the following link: <https://my.pcloud.com/publink/show?code=XZVxat7ZjIwJdjjBdfyO3uEaKmfmdf9JVXX>.

8. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). The MEDITS data is stored in different files in accordance with MEDITS instruction manual. Annually, the data is submitted to JRC/DGMARE under the Official Data Call on Med&BS.

Biological data and data on incidental catches of mammals, birds, reptiles from MEDITS surveys are annually submitted to GFCM in accordance to the DCRF obligations. Information on incidental catches from MEDITS survey is additionally submitted to end users whenever such information from surveys is requested.

MEDITS abundance indices are also routinely used for performing stock assessments (for specific stocks) which are submitted to GFCM.

Malta's MEDITS results are provided to local end users upon request/collaboration to be used in scientific projects and scientific publications.

9. Extended comments (Tables 1G and 1H)

NA

## SECTION 2: FISHING ACTIVITY DATA

### Text Box 2A: Fishing activity variables data collection strategy

General comment: This box fulfills paragraph 4 of Chapter III of the multiannual Union programme and Article 2, Article 4 paragraph (2) point (b) and Article 5 paragraph (2) of the Decision (EU) 2016/1701. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under Regulation (EU) No 1224/2009 or where data collected under Regulation (EU) No 1224/2009 are not at the right aggregation level for the intended scientific use.

General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the data collection of fishing activity variables of Member States.

#### 1. Description of methodologies used to cross-validate the different sources of data

Currently data checking and validation is carried out manually, jointly by the officers in charge of the different data collection units. However, Malta is in the process of having an automated function within its Fisheries Information System (FIS) which will allow for the automatic cross checking and validation of data from different data sources.

#### 2. Description of methodologies used to estimate the value of landings

Malta will provide data on commercial landings by weight and value for each segment by species, by quarter and by geographical origin of the catch. Figures will be based on exhaustive data reported in logbooks (for the over 10 metre fleet), by sampling landings (for the under 10 metre fleet). Landing values will also be based by data derived from the official fish market and direct sales notes data (>10m and <10m).

##### *Logbook Approach:*

By using information from logbooks, Malta will provide data on commercial landings (both within and outside the country) and total catch, including landings (in value and weight) according to the disaggregation and the precision requested, relating to over 10 metre fleet. Moreover, Malta intends to use the Fish Market Sales Notes Scheme together with the logbooks to provide data according to the Regulation. 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
- Value in euro

##### *Sampling Approach:*

A specific sample survey will be carried out to estimate landing relating to the small-scale fishery, i.e. under 10 metre fleet. Data will be collected to estimate overall annual commercial landings by species, by quarter and by geographical origin of the catch.; landings by weight and value will be estimated also by segment, individualised by species, by quarter, and with regard to the geographical origin of the catch, at the level of geographical disaggregation according to the Regulation, at precision levels requested. This type of data collection is used in order to be able to correlate catch variables to effort variables.

The objective of the survey is to estimate landings related to stocks in Table 1C (of the Regulation). The population under study consists of all Maltese vessels less than 10 metres during the survey reference year.

3. Description of methodologies used to estimate the average price (it is recommended to use weighted averages, trip by trip)

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

4. Description of methodologies used to plan collection of the complementary data (sample plan methodology, type of data collected, frequency of collection etc)

The Catch and Effort Assessment Survey (CAS) was developed with the objectives to provide monthly catch and effort estimates for the small-scale fleet, which do not have a logbook system. The sampling survey consists of a multivariate questionnaire sampling survey. The target population is made up of the vessels under 10 metres length overall registered in the Maltese fishing fleet register that includes full-time commercial vessels (MFA) and part-time commercial vessels (MFB). The sample; 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 Vessel Register.

*Collection of data:*

Face to face interviews are conducted with the vessel owners every fortnight. Information on catches, effort in fishing days, by type of gear, fishing areas and activity are obtained. This methodology of obtaining data overcomes the difficulty of acquiring data from the fish market and other official sources for the small scale fishery which can have many errors due to various reasons such as the underestimation in information on landings declared in the invoices for fiscal reasons and erroneous names attributed to fish species which are difficult to identify. Furthermore, data on effort is not reported in sales vouchers. The data obtained from the sample is then raised to the population.

*Stratification:*

In order to maintain the available time series of data, the criteria of season and of the fleet segmentation as described in Appendix IV of Commission Decision EC 93/2010 was used, and include registration class (MFA/MFB), length segment and fleet segmentation based on the gears registered in the fleet register.

*Sampling rate:*

The sampling rate varies according to the number of vessels in each fleet segment as indicated in the table below and when the number of vessels in a segment is low a census approach is performed.

<i>Fleet segment</i>	<i>Sample number</i>	<i>Comments</i>
<i>&lt; 5 vessels</i>	<i>Census</i>	<i>All year round</i>
<i>6 – 50 vessels</i>	<i>Census</i>	<i>All divided per quarter</i>
<i>51 – 200 vessels</i>	<i>10%</i>	<i>Divided per quarter</i>
<i>&gt; 200 vessels</i>	<i>50 vessels</i>	<i>Divided per quarter</i>

*Estimating procedures:*

From the vessels sampled, data on catch and effort is raised to the total fleet population of vessels less than 10 metres length overall. Raising is based on a weighting factor attributed to the total fleet segment.

Finally, both datasets of vessels less than 10m and vessels over 10 metres are combined to obtain an estimate of the total.

*Data validation:*

To avoid shortfalls, data collected from the catch assessment survey is cross-checked with data coming from market sales notes and direct sales vouchers. Sometimes information collected is also cross-checked directly with the fishers.

(max 900 words per Region)

5. Deviations from Work Plan methodology used to cross-validate the different sources of data

NA

Actions to avoid deviations.

NA

6. Deviations from Work Plan methodology used to estimate the value of landings.

NA

Actions to avoid deviations

NA

7. Deviations from Work Plan methodology used to estimate the average price.

NA

Actions to avoid deviations.

NA

8. Deviations from Work Plan methodology used to plan collection of the complementary data

NA

Actions to avoid deviations

NA

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3A: Population segments for collection of economic and social data for fisheries**

General comment: This box fulfils paragraph 5 points (a) and (b) of Chapter III of the multiannual Union programme and Article 2, Article 4 paragraphs (1), (2) and (5) and Article 5 paragraph (2) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Tables 5(A) and 6 of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the fleet socio-economic data collection of Member States.

#### 1. Description of methodologies used to choose the different sources of data

The population for the collection of economic and social data will include all active and inactive vessels registered on the Maltese Fleet Vessel Register on 31 December of the reporting year and vessels that do not appear on the Register at that date but have fished at least one day during the reporting year. Such data will be obtained from previous Maltese Fleet Vessel Registers.

#### 2. Description of methodologies used to choose the different types of data collection

Direct interviews based on questionnaires will be used to gather the data needed. However, subsidies will be collected from direct sources (i.e. from the authorities) while capital costs and capital value will not be collected but estimated according to the DCF legislation 2010/93/EU. Economic data will be collected on an annual basis while social data will be collected every three years.

#### 3. Description of methodologies used to choose sampling frame and allocation scheme

Economic and social variables will be collected on a census basis for all the segments. This means that the target population and frame population are the same.

In case of a very low number of vessels in fleet segments 'Vessels using hooks', 'Vessels using Pots and/or traps' and 'Drift and/or fixed netters', when requested, data will be clustered together with the segment 'Vessels using Polyvalent passive gears only' due to data confidentiality and as proposed by STECF with regards to Malta's annual report for reference year 2015.

This annual survey will be devoted to cover all the parameters mentioned in Table 5A of the Commission Decision 2016/1251 excluding effort and production value per species. The parameters mentioned in Table 6 of the Commission Decision 2016/1251 will be collected on a triennial basis.

#### 4. Description of methodologies used for estimation procedures

The methodologies to derive final estimates from data collected will be estimated in accordance to the Ad hoc Contract Commitment No.SI2 725 694; Ref. Ares(2016)2440332-26/05/2016 Methodologies for the socio-economic data described in the Commission Implementing Decision (EU) 2016/1251.

#### 5. Description of methodologies used on data quality

Data quality checking is carried out by officers responsible for the collection of economic data. Manual checks, as well as R scripts will be used. Additionally, collecting data on a census basis will improve the precision of the fleet data. 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.

(max 900 words per Region)

6. Deviations from Work Plan methodology for selection of data source

NA

7. Deviations from Work Plan methodology to choose type of data collection

NA

8. Deviations from Work Plan methodology regarding sampling frame and allocation scheme

NA

9. Deviations from Work Plan methodology used for estimation procedures

NA

10. Quality assurance

10.1 Sound methodology

Data is collected via census and covers all the parameters mentioned and defined in Commission Decision 2016/1251 (Table 5A and Table 6). 'Capital costs' and 'Capital value' variables are not collected but estimated according to the DCF Legislation 2010/93/EU, whereas final estimates from data collected are calculated in accordance to the Ad hoc Contract Commitment No.SI2 725 694; Ref. Ares(2016)2440332-26/05/2016 Methodologies for the socioeconomic data described in the Commission Implementing Decision (EU) 2016/1251.

10.2. Accuracy and reliability

Response rate and Achieved sample rate are provided in Table 3A.

Raw data inputs, intermediate results, and output are manually checked and assessed by officers responsible for economic data, followed by R script and corrected accordingly.

10.3. Accessibility and Clarity

Are methodological documents publicly available? No

Are data stored in databases? No

Where can methodological and other documentation be found?

This can be found in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website. There are no DCF partners; data is collected by the Department of Fisheries and Aquaculture only. Methodological documents are not provided with the data when this is requested. Data is stored in a MS Excel and in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website.



## SECTION 3: ECONOMIC AND SOCIAL DATA

### Pilot Study 3: Data on employment by education level and nationality

<p>General comment: This box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the multiannual Union programme and Article 2 and Article 3 paragraph (3) point (c) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Table 6 of the multiannual Union programme.</p>
<p>General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study (including deviations from planned and justifications as to why if this was not the case).</p>
<p>1. Aim of pilot study</p> <p>To collect data on employment by education level (no education, primary, secondary, post-secondary and tertiary education) and employment by nationality (country or EU/Non-EU country) on a census basis.</p>
<p>2. Duration of pilot study</p> <p>Data on employment by education level and nationality will commence in 2017 Annual Economic Survey and Aquaculture survey (reference year 2016) and ends in 2019 Annual Economic Survey and Aquaculture survey (reference year 2018). Total duration of 3 years.</p>
<p>3. Methodology and expected outcomes of pilot study</p> <p>Data will be collected by direct interviews on a census basis. It will give an overview of the education level of the fishers who works under the Maltese Fleet Register/ Aquaculture sector and their nationality.</p> <p>(max 900 words)</p>
<p>4. Achievement of the original expected outcomes of pilot study and justification if this was not the case.</p> <p>The expected results from the pilot study remained consistent with its aim, since data on employment by education level and nationality is being collected on a census basis.</p> <p>The pilot study was launched in 2017, in parallel with the annual economic survey (reference year 2016). This survey is carried out on a census basis and through face to face interviews with all active vessels (as per Fleet Vessel Register) that operated during the reference year being collected. The variables collected during the pilot study were:</p> <ul style="list-style-type: none"><li>- Role on the vessel (owner, skipper, worker, etc.);</li><li>- Gender of vessel members;</li><li>- Whether the vessel members work is carried out exclusively at shore or on shore, or whether he/she works both;</li><li>- Whether the vessel member is paid/unpaid;</li><li>- Age of the vessel members;</li><li>- Nationality of the vessel members (based on recommendations by PGECON); and</li><li>- Education level of the vessel members (based on recommendations by PGECON).</li></ul>
<p>5. Incorporation of results from pilot study into regular sampling by the Member State.</p> <p>Data collected will be used to cover the parameters mentioned in Table 6 of the Commission Decision 2016/1251.</p>

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3B: Population segments for collection of economic and social data for aquaculture**

General comment: This box fulfills paragraph 6 points (a) and (b) of Chapter III of the multiannual Union programme and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Tables 6 and 7 of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the socio-economic data collection for aquaculture of Member States.

#### 1. Description of methodologies used to choose the different sources of data

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 forming part of the Ministry for Sustainable Development, the Environment and Climate Change. Economic data will be collected on an annual basis while social data will be collected every 3 years.

#### 2. Description of methodologies used to choose the different types of data collection

Postal questionnaires will be used to gather the data needed. The latter is conducted in collaboration with the National Statistics Office under a Memorandum of Understanding.

#### 3. Description of methodologies used to choose sampling frame and allocation scheme

Data will be collected through a census even though not all the fish farms forming part of the total population will be part of the survey to be conducted; two of the eight registered aquaculture farms are inoperative.

Aquaculture farms in Malta can be segmented into four main segments according to the species farmed namely; sea bream and sea bass cages, Tuna cages and other marine fish cages. The main species farmed include Blue fin Tuna, Sea bass, Sea Bream, Meagre and Amberjack.

The number of aquaculture farms 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.

#### 4. Description of methodologies used for estimation procedures

The methodologies to derive final estimates from data collected will be estimated in accordance to the Ad hoc Contract Commitment No.SI2 725 694; Ref. Ares(2016)2440332-26/05/2016 Methodologies for the socio-economic data described in Commission Implementing Decision (EU) 2016/1251.

#### 5. Description of methodologies used on data quality

Data quality checking is carried out by officers responsible for the collection of economic data. Manual checks, as well as R scripts will be used. Additionally, collecting data on a census basis will improve the precision of the population data. 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.

#### 6. Deviations from Work Plan methodology for selection of data source

NA

7. Deviations from Work Plan methodology to choose type of data collection

NA

8. Deviations from Work Plan methodology regarding sampling frame and allocation scheme

NA

9. Deviations from Work Plan methodology used for estimation procedures

NA

10. Quality assurance

10.1 Sound methodology

Data is collected via census, in collaboration with the National Statistics Office under a Memorandum of Understanding, and covers all parameters stated in Commission Decision 2016/1251 (Table 7). Aquaculture farms are segmented into four groups according to the species farmed; sea bream and sea bass cages, tuna cages and other marine fish cages whereas the number of aquaculture farms are extracted from a count of the number of enterprises registered (this will exclude dormant units). Estimates are calculated in accordance to the Ad hoc Contract Commitment No.SI2 725 694; Ref. Ares(2016)2440332-26/05/2016 Methodologies for the socioeconomic data described in the Commission Implementing Decision (EU) 2016/1251.

All methodologies are documented and publicly available at:

<https://datacollection.jrc.ec.europa.eu/documents/10213/994708/Methodologies+for+socio+economic+data+described+in+EU+MAP.docx>

10.2. Accuracy and reliability

Response rate and Achieved sample rate are provided in Table 3B.

Raw data inputs, intermediate results, and output are manually checked and assessed by officers responsible for economic data, followed by R script and corrected accordingly.

10.3. Accessibility and Clarity

Are methodological documents publicly available?

The methodological documents used are those provided by the Commission and can be found online.

Are data stored in databases?

Data is stored in MS Excel sheets organised in shared folders. End-users may request aggregated data directly from the Commission or else from the Department of Fisheries and Aquaculture following data-request procedures. Work is being carried out on a regional level to set up a regional database for the Mediterranean and Black sea region.

Where can methodological and other documentation be found?

Data and any standard operating procedures (which are downloaded from the Commission website) can be found in an organised shared folder with restricted 'read and write' access. There are no DCF partners; data is collected by the Department of Fisheries and Aquaculture only. Data is stored in a MS Excel and in an organised shared folder with restricted 'read and write' access.

## SECTION 3: ECONOMIC AND SOCIAL DATA

### Pilot Study 4: Environmental data on aquaculture

General comment: This box fulfills paragraph 6 point (c) of Chapter III of the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (d) of the Decision (EU) 2016/1701. It is intended to specify data to be collected under Table 8 of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box is intended to provide information on the results obtained from the implementation of the pilot study (including deviations from planned and justifications as to why if this was not the case).

#### 1. Aim of pilot study

The aim of the pilot study is to collect environmental data for the aquaculture on a census basis.

#### 2. Duration of pilot study

Environmental data will be collected every two years starting from 2018 (reference year 2017) and will end in 2020 (reference year 2019). Total duration of the pilot study is three years.

#### 3. Methodology and expected outcomes of pilot study

Data will be collected by direct interviews (in collaboration with the National Statistics Office) on a census basis. It will provide data of the medicines or treatments used and the percentage of mortalities during the reference year, as will be recommended by PGEcon.

#### 4. Achievement of the original expected outcomes of pilot study and justification if this was not the case.

Environmental data was planned to be collected every two years starting from 2018 (for reference year 2017) and will end in 2020 (for reference year 2019). Total duration of the pilot study is three years. At present data for reference year 2017 and 2018 was not collected as there is no clear clarification on the definitions and methodologies, which must be used for such variables.

#### 5. Incorporation of results from pilot study into regular sampling by the Member State.

Once a clarification on the methodologies and definitions will be obtained, this data shall be collected accordingly, together with the economic and social variables i.e. on a census basis.

## SECTION 3: ECONOMIC AND SOCIAL DATA

### **Text Box 3C: Population segments for collection of economic and social data for the processing industry**

<p>General comment: This box fulfils footnote 6 of paragraph 1.1(d) of Chapter III of the multiannual Union programme, Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of Decision (EU) 2016/1701. It is intended to specify data to be collected under Table 11 of the multiannual Union programme.</p>
<p>General comment: This box is applicable to the Annual Report. This box should provide information on the implementation of the socio-economic data collection for aquaculture of Member States.</p>
<p><b>1. Description of methodologies used to choose the different sources of data</b></p> <p>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. This data will be collected on an annual basis.</p>
<p><b>2. Description of methodologies used to choose the different types of data collection</b></p> <p>Direct and postal interviews based on questionnaires will be used to gather the data needed.</p>
<p><b>3. Description of methodologies used to choose sampling frame and allocation scheme</b></p> <p>The economic and social variables of the processing industry 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.</p>
<p><b>4. Description of methodologies used for estimation procedures</b></p> <p>The methodologies to derive final estimates from data collected will be estimated in accordance to the Ad hoc Contract Commitment No.SI2 725 694; Ref. Ares(2016)2440332-26/05/2016 Methodologies for the socio-economic data described in Commission Implementing Decision (EU) 2016/1251.</p>
<p><b>5. Description of methodologies used on data quality</b></p> <p>Data quality checking is carried out by officers responsible for the collection of economic data. Manual checks, as well as R scripts will be used. Additionally, collecting data on a census basis will improve the precision of the population data. 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. g</p>
<p><b>6. Deviations from Work Plan methodology for selection of data source</b></p> <p>NA</p>
<p><b>7. Deviations from Work Plan methodology to choose type of data collection</b></p> <p>NA</p>
<p><b>8. Deviations from Work Plan methodology regarding sampling frame and allocation scheme</b></p> <p>NA</p>

9. Deviations from Work Plan methodology used for estimation procedures

NA

10. Quality assurance

10.1 Sound methodology

Data is collected via census and covers all parameters specified in Table 11 of the Commission Decision 2016/1251. The population was based on the enterprises listed under processing fisheries products as recorded in the Maltese Business Directory, and all derived estimates were calculated in accordance to the Ad hoc Contract Commitment No.SI2 725 694; Ref. Ares(2016)2440332-26/05/2016 Methodologies for the socio-economic data described in Commission Implementing Decision (EU) 2016/1251.

10.2. Accuracy and reliability

The response rates and achieved sample rates are provided in Table 3C.

Raw data inputs, intermediate results, and output are manually checked and assessed by officers responsible for economic data, followed by R script and corrected accordingly.

10.3. Accessibility and Clarity

Are methodological documents publicly available?

No

Are data stored in databases?

No

Where can methodological and other documentation be found?

This can be found in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website. There are no DCF partners; data is collected by the Department of Fisheries and Aquaculture only. Methodological documents are not provided with the data when this is requested. Data is stored in a MS Excel and in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website.

### Text Box 4A: Sampling plan description for biological data

General comment: This box fulfills Article 3, Article 4 paragraph (4) and Article 8 of the Decision (EU) 2016/1701 and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the multiannual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the multiannual Union programme.

General comment: This box is applicable to the Annual Report. This box should provide information on the deviations from the planned sampling of Member States.

#### 1. Description of the sampling plan according to Article 5 paragraph (3) of the Decision (EU) 2016/1701

##### 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 13 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 Implementing Decision (EU) 2016/1251 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 trawl gear type, when the crustaceans 'Aristaeomorpha foliacea' and 'Aristeus antennatus' are not part of the landings, Level 5 becomes 'Demersal species', whereas when the majority of the catch consists of the mentioned crustaceans, Level 5 becomes 'Deep water species' and when both demersal and deep water species are present in the landings in significant amounts, Level 5 becomes 'Demersal and deep water species'.

##### Selection of métiers to sample:

The reference data utilised to select the métier to be sampled in 2017-2019 was obtained from the 2014 and 2015 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. The ranking was done three times, one each for the:

- Commercial landings in tons
- Total landed value in Euros
- 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 in 2017 and it will be revised each



year based on the more recent reference data to ensure that sampling is representative of fishing conducted by the Maltese fleet.

For the sampling of discards, following the RCM Med&BS 2016 recommendation, Malta will follow the discard sampling program as suggested in the RCM Med&BS (2010) report. When, in order to determine if a métier is to be sampled for discards, further reference was required, data from onboard observations conducted in the previous years was consulted. Since OTB\_DWS\_>=40\_0\_0 was identified in this program as having significant discards but it was not selected by the métiers ranking system, this métier will still be sampled in 2017. This is in line with the recommendation from the RCM (2016) meeting.

#### Sampling scheme:

The sampling schemes selected are sampling from market, at sea and a combination of the two. Those métiers for which the discards behaviour is not significant (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 those métiers that have a significant percentage of discards, a minimum of one trip per quarter will be sampled at sea and the rest of the trips will be sampled either at sea or from the market.

In the case of drifting longlines (LLD\_LPF\_0\_0\_0 (BFT) & LLD\_LPF\_0\_0\_0 (SWO)) data from landing inspections will be included. 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 depends on the type of sampling conducted and on the seasonality of the fishery. Based on previous knowledge and previously used measures of effort a minimum number of two trips per quarter are set to be sampled per métier. 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 chosen will be chosen randomly by lottery in the case of swordfish and systematically selected in the case of tuna, by choosing the vessels which did not have onboard observers related to this fishery for the longest time in the series. 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 4A 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 so that they inform the Department the first time they would be using the gear. This will be done monthly to ensure that samples are collected over the whole quarter. Trips will then be sampled according to the fisher which contacts the Department first. Non-responses and refusals are documented.

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.

For drifting longlines targeting bluefin tuna, 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. As an improvement in 2017, vessels that had no or few onboard observers will be selected for sampling. In the case of longliners targeting swordfish 5% of the vessels will be randomly selected by drawing from all the longliners (>15m) targeting this species.

#### 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 1A, 1B and 1C of the DC-MAP will be included in the sampling plan.

The planned number of individuals to be sampled for biological data collection for demersal species and small pelagics will be calculated using the tool devised by the project Strengthening regional cooperation in the area of fisheries data collection the Mediterranean and Black Sea (MARE/2014/19-SI2.705484). However, since at this point the knowledge on how to use and run this tool amongst Member States is scarce, the number of individuals to be sampled in the year 2017 was decided by the Member State based on previous knowledge.

The RCM Large Pelagics group is currently working on devising an appropriate tool to calculate the optimum number of individuals to be sampled for the Large Pelagic species. As this tool is not available yet, 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) was retained for 2017.

Most of the shark species in Tables C and D of the Commission Implementing Decision (EU) 2016/1251 and of Group 3 of the GFCM-DCRF are rare and found sporadically in the Mediterranean area. Due to this, during the RCM Med&BS meeting (2016) it was decided that no planned minimum number and sampling strategy should be associated to the collection of these species. Sampling will be carried out concurrently during onboard and market sampling and through the MEDITS survey. Length will be measured for 100% of the individuals caught during onboard observations (or from a representative sample), 100% of the individuals caught from the MEDITS and whenever this species is encountered in the only fish market in Malta from Monday to Saturday. Other biological parameters (weight, sex and maturity) will be reported through the MEDITS survey.

Deviation from the sampling plan according to Article 5 paragraph (3) of the Decision (EU) 2016/1701:

## 2. Deviations from the Work Plan

- For pots and traps (FPO\_DEF\_0\_0\_0), the achieved number of trips sampled was higher than planned since this gear is used to target different species (*Octopus vulgaris* and *Boops boops*) and sampling was carried out on both fisheries.
- For trammel nets (GTR\_DEF\_>=16\_0\_0), seven trips were sampled for this métier, however during three of the trips, both trammel nets and gillnets were used. Therefore, these trips were post-stratified as MISC\_MDP\_0\_0\_0.
- For set longlines (LLS\_DEF\_0\_0\_0), the achieved number of trips was higher than planned since data was collected from both market and onboard observations to ensure complete coverage. Furthermore, surface longlines are used to target different species (*Diplodus sargus* and other fish) therefore, as per usual procedure, sampling was carried out on the different fisheries.
- For trawling (OTB\_DEF\_>=40\_0\_0, OTB\_MDD\_>=40\_0\_0 & OTB\_DWS\_>=40\_0\_0), the overall planned number of sampled trips for trawlers was achieved. However, the trips are post-stratified at the end of the year into the three types of trawling, depending on the composition of the catches. As a result, the sampled number of trips by target assemblage was not achieved for all three métiers. Following post-stratification, a 225% achievement rate was obtained for OTB\_MDD\_>=40\_0\_0, whilst none of the sampled trips were classified as either OTB\_DEF\_>=40\_0\_0 or OTB\_DWS\_>=40\_0\_0. The numbers of trips by target were compared to the total number of trips conducted in 2019. In fact 99% of the trips conducted by trawlers were post classified as OTB\_MDD\_>=40\_0\_0.
- For purse seiners targeting small pelagic fish (PS\_SPF\_>=14\_0\_0), the achieved number of trips was higher than planned since data was collected from both market and onboard observations to ensure

complete coverage of métier and to obtain measurements of weight, sex and maturity samples of *Scomber* spp. and *Sardinella aurita*.

### 3. Action to avoid deviations

- The number of trips required for pots and traps (FPO\_DEF\_0\_0\_0) was updated in subsequent Work Plans from 12 to 24 to account for sampling of the gear targeting different species.
- In 2020, following the revision of the ranking system, both trammel nets (GTR\_DEF\_>=16\_0\_0) and mixed trammel nets and gillnets MISC\_MDP\_0\_0\_0 were selected for sampling. Therefore, adequate coverage of both métiers should be achieved.
- For set longlines (LLS\_DEF\_0\_0\_0), a note will be added to the Work Plan for 2020 to explain that this gear is used in different fisheries to target different species and that sampling from market will cover the different fisheries.
- Given that most of the conducted trips by trawlers were post-classified as OTB\_MDD\_>=40\_0\_0, this year no action could be taken to sample the other two métiers (only two trips were conducted).

## SECTION 5: DATA QUALITY

### Text Box 5A: Quality assurance framework for biological data

General comment: This box is applicable to the Annual Report. This box fulfills Article 5 paragraph (2) point (a) of the Decision (EU) 2016/1701. This box is intended to specify data to be collected under Tables 1(A), 1(B) and 1(C) of the multiannual Union programme. Use this box to provide additional information on Table 5A.

#### 1. Evidence of data quality assurance

The sampling design and methodologies for data capture, data processing and storage are available in an internal document, entitled “Biological Sampling Methodology”. This file is stored in an organised shared folder with restricted ‘read and write’ access, serving the same purpose as an internal website. The document ensures that data is collected using standardised methodologies and that data quality is maintained through the application of checks that ensure data completeness and validity. Detailed descriptions of the methodologies adopted for data collected are also provided in Text box 4A of the Work Plan: <https://datacollection.jrc.ec.europa.eu/wp/2017> and in Table 1C and 4A of this report.

Any recommendations and knowledge obtained from working groups and project will be incorporated into the protocol to continue improving data collection, quality and assessment and to address any new requirements.

#### 2. Sampling design

For all sampling schemes listed in Table 5A, details on sampling design are provided in Text box 4A of the Work Plan and included in the “Biological Sampling Methodology” document. The sampling design follows the definitions provided in the Commission Implementing Decision (EU) 2016/1251. Furthermore, the methodology is in line with the recommendations emanating from the RCM-Med&BS 2016 meeting and following conclusions obtained from the PGMed and other regional working groups attended by Malta.

#### 3. Sampling implementation

Non-responses and refusals are documented as indicated in Table 5A.

#### 4. Data capture

Checks are in place to ensure the validity and completeness of the data, before it is stored, processed and transmitted to end-users. For all sampling schemes listed in Table 5A, details of quality checks used to validate the data are available as part of “Biological Sampling Methodology” document.

#### 5. Data Storage

For all sampling schemes listed in Table 5A, data is stored in an MS Excel and in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website. The MS Excel sheet itself contains checks to ensure that data is complete and valid.

#### 6. Data processing

Data processing is performed in line with the guidelines provided by end-users for each data request. Furthermore, all required data checks provided by end-users are carried out on the data to confirm validity and completeness. Specific information is available in the “Biological Sampling Methodology” document.

## SECTION 5: DATA QUALITY

### **Text Box 5B: Quality assurance framework for socioeconomic data**

General comment: This box fulfills Article 5 paragraph (2) point (b) of the Decision (EU) 2016/1701. This box is intended to specify data to be collected under Tables 5(A), 6 and 7 of the multiannual Union programme. Use this box to provide additional information on Table 5B.

#### 1. Evidence of data quality assurance

For all sectors, continuous works seeking to improve the accuracy of the data inputting processes and data validation are being carried out. This will ensure that data quality is safeguarded. The recorded data is stored and organised in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website.

#### 2. Section P3 Impartiality and objectiveness

NA

#### 3. Section P4 Confidentiality

NA

#### 4. Section P5 Sound methodology

NA

#### 5. Section P6 Appropriate statistical procedures

NA

#### 6. Section P7 Non-excessive burden on respondents

NA

#### 7. Section P8 Cost effectiveness

NA

#### 8. Section P9 Relevance

NA

#### 9. Section P10 Accuracy and reliability

NA

#### 10. Section P11 Timeliness and punctuality

NA

#### 11. Section P12 coherence and comparability

NA

## 12. Section P13 Accessibility and Clarity

Documentation, although not publicly available, is in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website. There are no DCF partners; data is collected by the Department of Fisheries and Aquaculture only. Methodological documents are not provided with the data when this is requested. Data is stored in an MS Excel and in an organised shared folder with restricted 'read and write' access, serving the same purpose as an internal website.