



REPUBLIC OF CYPRUS



**MINISTRY OF AGRICULTURE
NATURAL RESOURCES
AND ENVIRONMENT**

**DEPARTMENT OF FISHERIES
AND MARINE RESEARCH
1416 NICOSIA**

Council Regulation (EC) No 199/2008 of 25 February 2008
concerning the establishment of 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

Commission Regulation (EC) No 665/2008 of 14 July 2008
laying down detailed rules for the application of Council Regulation (EC) No 199/2008

Commission Implementing Decision (EU) 2016/1251 of 12 July 2016
adopting a multiannual Union programme for the collection, management and use of data in the fisheries and aquaculture sectors for the period 2017-2019

Cyprus Work Plan for data collection in the fisheries and aquaculture sectors 2017-2019

Nicosia, 31 October 2016

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SECTION 1: BIOLOGICAL DATA

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

General comment: This Box fulfills paragraph 4 of Chapter V of the multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (a) of this Decision.

Mediterranean Sea

1. Aim of pilot study

Recreational fishing is a very popular activity in Cyprus, which is regulated through the issue of licenses with restrictions on the use of fishing gears, allowable quantities of catches, spatial and temporal restrictions, and prohibited species (large pelagic species, elasmobranchs). The categories of recreational fisheries that require license include i. fishing with the use of boat (using bottom set longlines, traps, trolling, handline, fishing rods), ii. fishing with the use of spear-guns (free divers), and iii. operating chartered fishing tours. Currently the use of fishing rods from the shore does not require licensing and is not regulated (except for minimum conservation reference sizes established by Reg. (EC) 1967/2006).

Information on the characteristics of the recreational fisheries, their impacts on fisheries resources but also their contribution to the economy is limited. The aims of the proposed pilot study are the following:

- Identify the main species caught by each of the recreational fisheries categories exercised in Cyprus
- Quantify recreational catches by species (in numbers and weight), including released catches (especially of the prohibited species - bluefin tuna, swordfish and elasmobranchs)
- Collection of information on recreational fishing activity (quantification of fishing effort, number of fishermen fishing from shore, spatial and temporal distribution of fishing effort, fishing methods used and gear specificities)
- Collection of socio-economic variables for evaluating the contribution of recreational fisheries to the economy and in particular to the coastal communities

2. Duration of pilot study

2 years, starting in 2017.

3. Methodology and expected outcomes of pilot study

Methodology

For the categories of recreational fisheries, such as fishing from shore, where a fishing license is not required

and hence the number and frequency of people fishing is unknown, a probability-based nationwide survey of the population will be performed in an attempt to estimate the number of people who are fishing recreationally from shore, the frequency and the areas in which they fish. Further data will be collected with direct observations at randomly selected stretches of coastline on randomly selected days where all fishing activities will be recorded.

For all the other categories of recreational fisheries that a fishing license is required, the number of fishers is known and they will be randomly sampled in order to collect information on fishing effort and catches as well as other information such as frequency, locations, expenses etc. These data will be cross referenced with data that will be collected from on-site intercepts of fishers upon completion of fishing.

Expected outcomes

At the end of the study the most important species caught (retained and released) by recreational fishers will be identified and the proportion of the total national recreational catches for each species will be estimated.

The highly migratory ICCAT species that are not currently prohibited from recreational fishing and are caught will be identified, to be included in the future work plans for regular data collection.

Additional species will be proposed for their possible inclusion in the list of species to be sampled from recreational fisheries.

Knowledge will be gained on recreational fishing activity in relation to time, space, fishing methods and gear specifications; this information is expected to contribute to the design of effective and enforceable management measures.

The evaluation of the social and economic benefits of recreational fishing activities, in conjunction with the assessed interactions with the commercial fisheries, is expected to be used for forming a policy for the management of all fisheries.

(max 900 words)

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 multi-annual Union programme and Article 2 of this Decision.

Mediterranean Sea

In Cyprus there is no commercial fishery on eel. As indicated in Table IE of the Work Plan, Decision 2009/310/EC exempts Cyprus from the obligation to prepare an Eel Management Plan in accordance with Regulation (EC) 1100/2007.

Method selected for collecting data.

Not applicable.

(max 250 words per Area)

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 multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (b) of this Decision.

Mediterranean Sea

Pilot study 2.1 – Seabed mapping

1. Aim of pilot study

Fisheries resources in the Mediterranean Sea are heavily impacted by overharvesting, as well as other stressors, like climate change and connection with the Red Sea biota through the Suez Canal. Most of the exploited resources are currently overfished well beyond maximum sustainable yield (MSY) exploitation rates (COM 2015 239 Final of 2.6.2015) while their actual abundances are often below the levels capable of producing MSY. Some exploited species are even classified as high risk on the IUCN scale of threatened species.

Future fisheries management strategies need to be matched by a balanced exploitation of the fish stocks in line with the MSY approach. This requires information not only on the status of the exploited parts of stocks, but also on the level of the impact of fisheries on biological resources and marine ecosystems as a whole. This impact needs to be assessed qualitatively, temporally, as well as spatially.

Knowledge of the sea-floor topography and particularly the existence and characteristics of biologically sensitive areas, including important fish habitats like spawning, nursery and feeding areas, fish refuges, etc., is particularly important for fisheries management, as life cycles and dynamics of fish stocks depend greatly on a range of widely separated coastal and offshore habitats and hydrographic conditions during the fishes' life spans.

Combining existing fisheries data with information on marine habitat topography can produce valuable knowledge by answering questions like:

- Which types of marine habitats (depth, bottom type, etc.) are mostly impacted by fisheries and how (gear, season, species, etc.)?
- What is the level of impact (spatial and temporal) of fisheries on each type of habitat?
- Are there important areas that are not impacted by certain fisheries? If yes is it because they are unknown to fisheries or because of unsuitable conditions for fishing with certain gears (e.g. steep cliffs, narrow canyons, rocky outcrops, etc.)? Have these areas become spatial refuges contributing to maintain, for the time being, the resilience of some exploited stocks against long-lasting overfishing, meaning that any loss of these areas, for example because of fisheries technological development, could further accelerate the

deterioration of the state of several stocks?

Considering the above, the Republic of Cyprus aims identify and map biologically sensitive areas within its insular shelf and estimate the level impact of fisheries on the marine ecosystem.

2. Duration of pilot study

1 year. It is planned to start in 2017.

3. Methodology and expected outcomes of pilot study

Seabed mapping will be conducted using modern multibeam sonar technology and high quality detailed maps of the seabed are expected to be produced for Cyprus' insular shelf, from the coast up to a depth of around 200 m, where most of the inshore fishing activities take place. It is noted that the area from the coast up to the isobath of 50 m has already been mapped using LIDAR technology. The remaining area from 50 to 200 m covers about 1000 km². Produced maps will include information on the depth, bottom composition and bottom structure. Through these maps, important fish habitats, possible feeding and spawning areas, fish refuges as well as other ecologically sensitive areas will be identified and mapped using GIS techniques. The maps produced will be used to estimate the level impact of fisheries on the marine ecosystem, a valuable information for future fisheries management policies.

Pilot study 2.2 – Assessment of incidental bycatches of birds, mammals, reptiles and fish.

In accordance with the RCG Med&BS 2017 recommendation, Cyprus will follow the planned monitoring programme of the GFCM on the incidental catch of vulnerable species, and 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).

1. Aim of pilot study

The aim of the pilot studies is 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 selected metier 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 metiers/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 2.3 – Distribution and biomass estimation of aggregated fish populations using Acoustic Research Survey.

1. Aim of pilot study

The acquisition of representative and fisheries independent estimations of fish populations size is of paramount importance for assessing the impacts of fishing on biological resources, and for regulating fishing activities at sustainable levels of exploitation. The current research survey conducted under the national work plan, in accordance with Table 10 of EUMAP, lacks the potential of assessing the relative abundance of a number of important species exploited by the Cypriot fishing fleets, including the demersal, semi-pelagic species *Spicara smaris* and *Boops boops*.

Spicara smaris is the most important species for trawlers in Cyprus, while *Boops boops* is the most important species in tonnage and value for the Cypriot artisanal fisheries. The fisheries data produced under the data collection programme and used for assessing the status of the above species cannot be tuned using an independent abundance index, and CPUE (with the many problems it carries) is the nominal code of practice for the delivered assessments which need to be improved. Acoustics seem to open a window of opportunity to get an almost absolute estimate of Spawning Stock Biomass of these species which aggregate during spawning season.

Considering that acoustic surveys have never been carried out in Cyprus – GSA25 due to the low presence of small pelagic species, a pilot study is proposed for performing for the first time an acoustic survey in the area, aiming to gain knowledge of the biomass levels and the spatial distribution of the species *Spicara smaris* and *Boops boops*.

2. Duration of pilot study

1 year. It is planned to start in 2019 (1st and 2nd Quarter, during spawning season of the target species).

3. Methodology and expected outcomes of pilot study

Acoustic survey will be conducted using modern multibeam/broadband/wideband sonar technology that gives the ability to transect various frequency's simultaneously and post process the echograms to facilitate various scopes of analysis. The survey will be cover all area under the effective control of the government of the Republic of Cyprus in depths bellow 50m were the spawning event occurs for the semi demersal (and /or semi pelagic) species, *Spicara smaris* (most important species for trawlers in Cyprus) and *Boops boops* (most important species in tonnage and value for Cypriot artisanal fisheries) and when fish aggregate in relatively big schools. Other species will also be studied wherever possible. Bathymetric data from LIDAR mapping survey will be considered for proper beam dead zone calculations coupled with calibration on survey areas and species target strength tests on the field.

Fish sampling will take place using both pelagic and bottom trawls in order to “translate” the echo inputs into species biomass.

Sampling strategy will be based on systematic pre-planned design which provides the most precise estimate of the abundance in a fixed domain and delivers the best distribution maps. An autocorrelation model will be used to estimate the survey precision. The selected depth allocation reduces the sampled water volume considerably and this allows for a very representative coverage of the study area.

Expected outcomes will be the estimation of the spawning stock abundance of the two target species, a distribution map of aggregation patterns and hot-spot spawning areas that might need a special management considerations. Auxiliary information on species that will happen to be sampled during the cruise will be collected and evaluated. Estimation of plankton abundance will also be delivered as part of the post processing process which will add to the existing knowledge of the ecosystem functions and productivity. Multibeam technology will also give an opportunity to study internal school structures and behaviour which play an important role in the way the fish aggregate and has a great influence on the catch.

Derived survey SSB quantities will be compared with the estimates calculated in single species stock assessments and not only will advise the assessments but will also provide insights of the predicted and the real populations.

Based on the outcomes of the pilot study, Cyprus will evaluate the usefulness of including this acoustic survey in future work plans and/or may propose a continuation of the pilot study for optimising the survey design. In case the survey is decided to be performed systematically under the national work plan, it is expected to be coordinated under the MEDIAS (MEDiteranean International Acoustic Survey) Steering Committee.

Pilot study 2.4 – Study on trophic webs in the marine environent of Cyprus based on Integrated Maritime Policy. This study will be funded from an alternative EMFF scheme (Priority Union 6).

(max 900 words)

SECTION 1: BIOLOGICAL DATA

Text Box 1G: List of research surveys at sea

General Comment: This Box fulfills Chapter IV of the multi-annual Union programme and Article 2 and Article 7 paragraph (3) of this Decision. It is intended to specify which research surveys at sea set out in Table 10 of the multi-annual Union programme will be carried out. Member States shall specify whether the research survey is included in Table 10 of the multi-annual Union programme or whether it is an additional survey.

Mediterranean Sea

International bottom trawl survey in the Mediterranean (MEDITS)

In accordance with Table 10 of the multi-annual Union programme, the International bottom trawl survey in the Mediterranean (MEDITS) is the only research survey that will be carried out by Cyprus (GSA25) during 2017-2019. No additional surveys will be performed during the relevant period. The MEDITS survey is carried out by Cyprus since the beginning of its national data collection programme (i.e. 2005).

1. Objectives of the survey

The aim of the survey is to collect biological data from the demersal species around the Cyprus seas, for creating time series of abundance and biomass indices, and length frequency distributions. The trends of these data series will provide information on the status of the Cyprus resources, which may contribute to their management.

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

The common methodology for the survey is defined in the instruction manual of Medits (version 8, 2016), available at http://www.sibm.it/MEDITS%202011/docs/Medits_Handbook_2016_version_8_042016.pdf.

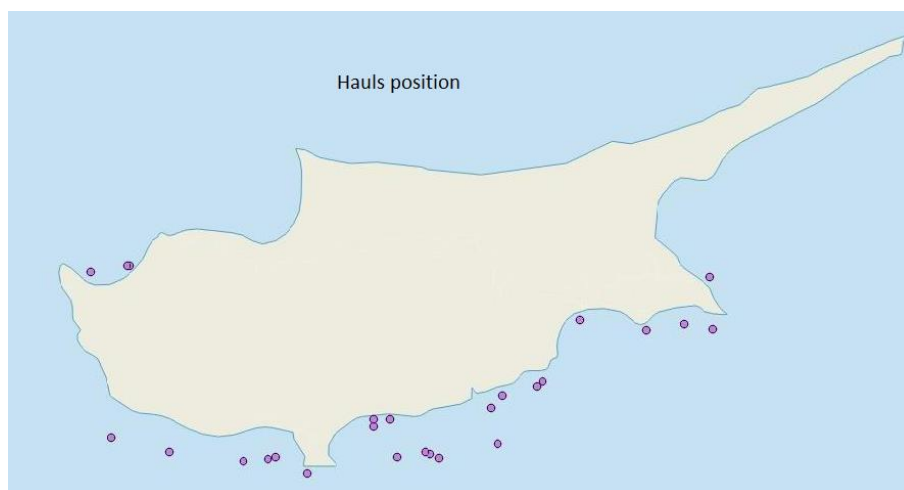


Figure 1.G.1: Distribution of sampling hauls of the Medits survey in GSA25.

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

The participating countries in the Medits survey (including non EU Member States) are the following: Spain, France, Italy, Malta, Slovenia, Croatia, Greece, Cyprus, Montenegro, Albania. A list of all vessels used until now, for carrying out the survey, is included in the Medits instruction manual. The Medits Steering Committee is composed by national coordinators. Some MS can have regional coordinators to manage certain regions within the country. The Medits Steering Committee nominates the person in charge of the coordination at international level every 3 years (with possible extension for another 3 years). Information on the National and Regional coordinators, as well as the international coordinator is provided in the Medits instruction manual.

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

Not applicable.

5. Explain where thresholds apply

No thresholds apply.

(max 450 words per survey)

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 multi-annual Union programme and Article 2, Article 4 paragraph (2) point (b) and Article 5 paragraph (2) of this Decision. 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.

Mediterranean Sea

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

Data on certain fishing activity variables and for certain fleet segments collected under Control Regulation are not considered appropriate for scientific use. Identified issues of concern include:

- Discrepancies among records (by species and/or quantities) between logbooks and sales notes.
- Grouping of species under a common commercial name, especially in cases of relatively high number of species and low quantities; it is noted that fishermen are required to record all species irrespectively of the weight.
- Misidentification, misreporting and/or under-reporting of species and quantities.
- Sales notes do not provide information on the relevant métiers, and certain effort variables.
- Sales notes may not even be produced for a specific category of vessels below 12m (Vessels using Polyvalent 'passive' gears only - category C, allowed to fish a total of 70 days each year, and with most of the fish produced kept for self-consumption)

Due the above, complementary data will be collected under data collection, for improving the reliability of the estimated variables and for providing them to the requested aggregation level.

Landings weight data:

Landings weight data will be collected from bottom trawlers involved in demersal fishery in GSA25, and for fleet segments that are not required to use logbooks. The aim is to compare data collected with data recorded under Control Regulation for the same trips. Discrepancies will be recorded and relevant correction factors will be suggested (e.g. % of under-reporting, misidentified species). For vessels using polyvalent passive gears only (0-6m, 6-12m), landings data will be collected by métier, and estimation will be made on the percentage of landings assigned to each métier. The percentage will be then raised to the total landings, allowing the estimation of landings by species by métier.

Concerning vessels using “Polyvalent 'passive' gears only - category C”, landings data will be collected by census, with the provision of landing declarations to all licensed vessels.

Effort data:

The collection of effort data concerns vessels using polyvalent passive gears only (0-6m, 6-12m), for most of

which the only information derives from sales notes. Sales notes will be used as a proxy for fishing days, which are considered equivalent with days-at-sea, fishing trips and fishing operations. With the collection of effort data by métier, estimation will be made on the % of fishing days assigned to each métier. In case during a fishing day more than one métier is exercised, one fishing day will be assigned to each of the métiers exercised by the vessel. The percentage will then be raised to the total number of fishing days, allowing the estimation of fishing days by métiers.

Based on data collected on length of nets, number of hooks and number of pots, an average value of these variables will be estimated by métier, and will be raised to the total number of fishing days by métier.

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

The value of landings will be estimated by species by fleet segment and by métier. For each fleet segment, the average price of species will be estimated at métier level, by multiplying the average price with the landings assigned to each métier exercised by the fleet segment. In cases of landings at foreign ports, average prices will be estimated separately. The total value of landings will be estimated with aggregating the value of landings of each fleet segment.

3. Description of methodologies used to estimate the average price

For estimating average prices, data on prices will be collected. For species landed in more than one commercial category, average prices will correspond to each commercial category, and the estimated average price will be their weighted average. It is noted that there are no auction markets in Cyprus, and prices of fish sold to fishmongers are fixed for all vessels.

4. Description of methodologies used to plan collection of complementary data

The collection of complementary data on weight of landings and effort will be incorporated to biological sampling. Specifically,

- For bottom trawlers involved in demersal fishery in GSA25, landings weight data will be collected through a probability sample survey; trips of the licensed vessels will be selected randomly and will be sampled on-shore and at-sea (at randomly selected hauls). During sampling all species will be recorded and mixed categories will be analysed.
- For vessels using 'polyvalent passive gears only' engaged in demersal fishery, landings weight and effort data will be collected through a probability sample survey. The PSU will be the landing site on a given day, which will be selected randomly twice per week. SSU will be the cluster of trips within the PSU, aiming to sample all vessels. For each sampled trip data on métiers and quantities of gears used will be recorded, as well as all quantities of species, assigned to each métier.
- As mentioned, landing declarations will be provided to all vessels using 'polyvalent passive gears only' – Category C, for collecting landings data on census.

Data on prices of species will be collected through interviews of the main fishmongers around Cyprus (covering around 70% of landed fish). Fishmongers will be selected based on a probability sampling survey, on a quarterly basis. During interview prices will be collected for all species and all relevant commercial categories.

(max 900 words per Region)

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This Box fulfills paragraph 5 points (a) and (b) of Chapter III of the multi-annual Union programme and Article 2, Article 4 paragraphs (1), (2) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Tables 5(A) and 6 of the multi-annual Union programme.

Mediterranean Sea

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

Data required can be derived from the Fleet Vessel Register (FVR) and the National Statistics Database (SDAP). The most important tool that will be used is the post/face-to face interviews based on predetermined questionnaires. Most of the vessels do not have financial accounts since their owners are individuals.

Data Sources besides questionnaires and FVR:

- Income: logbooks and sales notes.
- No individual quotas or fishing rights exist.
- Personnel costs: It includes temporary and rotation crew onboard. For the fleet segments of polyvalent passive gears over 12m and demersal trawlers the information is gathered directly from the survey (questionnaires) since all the crew and the skipper are paid with a fixed salary. As for the polyvalent passive gears 0-<6m and 6-<12m length categories, the crew members are the owners and their assistants who are usually their sons. These persons are not paid any salary and it is considered as unpaid labour. Thus, personnel costs for this fleet segment is considered zero.
- Value of unpaid labour: The FTE method (WS, Naples, 2009) is applied where the average wage by fleet segment is used.
- Energy costs: Fuel costs are collected from questionnaires. For the polyvalent passive gears 0-<6m and 6-<12m length categories this information is collected from the booklets each vessel owner has given by Cyprus authorities for the subsidised fuels.
- Operating Subsidies and Subsidies on investments are collected from DFMR's records because DFMR is the responsible authority for the implementation of state aid in fishery sector and also of the EMFF 2014-2020.
- Capital value: Estimation based on PIM method using a degressive depreciation scheme.
- Engaged crew and unpaid labour: For the fleet segments of polyvalent passive gears over 12m and demersal trawlers the information is gathered directly from questionnaires. As for the polyvalent passive gears below 12m, the information is gathered from the DFMR's records; fishing licences

where the fishermen assistants are recorded on the fishing licences.

- Total hours worked: Estimation based on effort, number of vessels and average crew number.
- Fuel consumption: Estimated based on the fuel costs and the average price of petrol during the year.

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

The data collection scheme for trawlers and vessels using polyvalent passive gears over 12m is census. For the polyvalent passive gears 0-12m length categories, probability sample survey will be performed.

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

Before drawing the sample that will be used, the population will be stratified based on the required fleet segmentation. No further stratification within the fleet segment will take place.

Based on a new national legislation, a new category (C) of professional fishermen was introduced whose fishing activity is performed on a periodic basis since they are allowed to fish only a total of 70 days each year. Most of the fish produced by this segment is kept for self consumption. Consequently, their income from fisheries activities is too low. Thus, this new category, which represents the segments Polyvalent "passive gears only" 0-<6m (category C licences) and Polyvalent "passive gears only" 6-<12m (category C licences), cannot be integrated with the existing segments of 'Vessels using Polyvalent passive gears only' below 12m since the data of previous years would not be comparative and we would face problems of bias.

For the 'Vessels using Polyvalent passive gears only' below 12m, a stratified random sampling procedure will be carried out. The sample will cover the 30% of the whole population of the segment 'Vessels using Polyvalent passive gears only' 0-<6m and 20% of the segment 'Vessels using Polyvalent passive gears only' 6-<12m. As far as the new segment 'Vessels using Polyvalent passive gears only' 0-<6m (category C licences) the planned sample rate is 20% whereas for the new segment 'Vessels using Polyvalent passive gears only' 6-<12m (category C licences) the planned sample rate is 30%.

The polyvalent vessels using passive gears over 12 m are all included in a single category, 12-<18m. Both length groups (12-<18m and 18-<24m) are involved in inshore fishery activities and they also perform longer trips since they target swordfish, albacore and Bluefin tuna. The cost structure of the clustered segments does not change much. The clustering will not create any problems of bias.

The demersal trawlers below 24m are only 2 and thus, they could be regrouped in the 24-<40m length group. Both groups are engaged in the same metier and they target the same group of species with the same gear despite their vessels length.

4. Description of methodologies used for estimation procedures

In the case of trawlers and polyvalent passive gears vessels over 12m, where a census will be performed, non-responsive units may exist. The method used to raise the final estimates to total population is the adjustments of

raising factors, where the factors is the total number of licensed active vessels. The same method will be used for the Polyvalent passive gears 0-12m segment, where the probability sample survey will be performed. For this segment of vessels using polyvalent passive gears 0-12m, rotation will be applied to substitute non-responsive units. Those substituted units will be randomly selected from the same fleet segmentation, so as the main characteristics of the substituted units to be the same with the original ones.

5. Description of methodologies used on data quality

See relevant Table 5B.

(max 900 words per Region)

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This Box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the multi-annual Union programme and Article 2 and Article 3 paragraph (3) point (c) of this Decision. It is intended to specify data to be collected under Table 6 of the multi-annual Union programme.

1. Aim of pilot study

Due to the small size of the fisheries sector no pilot studies need to be performed regarding the collection of data on employment by education level and nationality. Instead a census survey will be performed through predetermined questionnaires, covering 100% of the population.

For the collection of data on employment by education level and nationality regarding the aquaculture sector no pilot studies will be performed. Instead a census survey will be performed covering 100% of the population. The data will be collected by relevant questionnaires that will be submitted by the directors / owners of the fish farm units.

2. Duration of pilot study

The census surveys will be performed on an annual basis

3. Methodology and expected outcomes of pilot study

It is expected that reliable data will be collected.

(max 900 words)

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 multi-annual Union programme and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Tables 6 and 7 of the multi-annual Union programme.

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

As defined in the ANNEX - CHAPTER V (Thresholds) paragraph 5 and 6 of the Commission Implementing Decision (EU) 2016/1251 of July 2016, CYP total aquaculture production volume and value, as reported in the CYP latest submission under Regulation (EC) No 762/2008, are both less than 1% of the total EU aquaculture production volume and value. The EU aquaculture production volume and value was taken by the most recent data published by Eurostat (2014).

Additionally as defined in the ANNEX - CHAPTER V (Thresholds) paragraph 5 and 6 of the Commission Implementing Decision (EU) 2016/1251 of July 2016 we do not need to provide socio-economic aquaculture data on the production of shellfish which accounts less than 10% of CYP aquaculture production by both volume and value, as reported in CYP latest submission under Regulation (EC) No 762/2008.

Furthermore no socio-economic data will be collected as regards fresh water aquaculture as it is not mandatory (optional – Chapter III, annex, paragraph 6 of the Commission Implementing Decision (EU) 2016/1251 of July 2016) .

Taking into consideration the above and the relevant thresholds as defined in the ANNEX - CHAPTER III – paragraph 6 and CHAPTER V (Thresholds) paragraph 5 and 6 of the Commission Implementing Decision (EU) 2016/1251 of July 2016 Cyprus does not intend to collect and submit any socioeconomic and / or environmental data.

In case of any change of the production that will not fall within the thresholds as described in the Commission Implementing Decision (EU) 2016/1251 of July 2016 Cyprus will proceed with the collection of marine aquaculture data as follows.

The data needed (economic, social and environmental) will be collected directly from the fish farm companies / units with the use of questionnaires, face to face interviews and based on the financial statements that are prepared and submitted by the Financial Directors / owners of the Aquaculture Companies. Due to the small size of the aquaculture sector in Cyprus, all data will be generated and submitted directly by the company involved. The same methodology will be used for all the aquaculture units / companies that are operating in Cyprus.

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

Data collection will be performed by A – Census and with the use of questionnaires, face to face interviews and based on the the financial statements that are prepared and submitted by the Financial Directors / owners of the Aquaculture Companies.

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

Due to to the small size of the population an A Census will be performed with a planned rate of 100% .

4. Description of methodologies used for estimation procedures

The data needed will not be estimated but 100% census will be conducted due to the small size of the population.

5. Description of methodologies used on data quality

The data needed are collected with the use of questionnaires, face to face interviews and based on the financial statements prepared and submitted by the Financial Directors or owners of the Aquaculture Companies / Units.

All the enterprises will be covered exhaustively and no sampling will take place due to the small size of the population. In the case of any non-responsive units, no rotation will be applied

As mentioned above, to assure the quality of the collected data, the data collection type will be census and thus information will be given on the targeted response rates.

(max 1000 words)

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 multi-annual Union programme and Article 2 and Article 4 paragraph (3) point (d) of this Decision. It is intended to specify data to be collected under Table 8 of the multi-annual Union programme.

1. Aim of pilot study

For the collection of environmental data on aquaculture (medicines/treatments administered and mortalities) no pilot studies will be performed. Instead a Census survey will be performed covering 100% of the population. The data will be collected by relevant questionnaires that will be submitted by the directors / owners of the fish farm units.

2. Duration of pilot study

The census survey will be performed on an annual basis

3. Methodology and expected outcomes of pilot study

It is expected that reliable data will be acquired.

(max 900 words)

SECTION 3: ECONOMIC AND SOCIAL DATA

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

General comment: This Box fulfills footnote 6 of paragraph 1.1(d) of Chapter III of the multi-annual Union programme, Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of this Decision. It is intended to specify data to be collected under Table 11 of the multi-annual Union programme.

It is an optional section and Cyprus will not proceed with the collection of data of the processing sector because this sector is really small and confidentiality issues arise.

1. Description of methodologies used to choose the different sources of data
2. Description of methodologies used to choose the different types of data collection
3. Description of methodologies used to choose sampling frame and allocation scheme
4. Description of methodologies used for estimation procedures
5. Description of methodologies used on data quality

(max 1000 words)

Text Box 4A: Sampling plan description for biological data

General Comment: This Box fulfills Article 3, Article 4 paragraph (4) and Article 8 of this Decision and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the multi-annual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the multi-annual Union programme.

Mediterranean Sea

Aim:

- Length sampling for estimating length frequency of catches from commercial fisheries for stocks selected for sampling (see WP Tables 1A&1B), to be reported at metier level 6. Length sampling will be performed annually enabling quarterly estimations of length distribution.
- Sampling for weight, age, sex and maturity for estimating mean weight, age distribution, sex-ratio and maturity of catches from commercial fisheries of selected stocks (see Table IB of WP). The temporal resolution has been regionally agreed by RCM Med&BS-LP 2016, and is based on a stratification of the stocks (Group 1, 2 and 3 species) as in the adopted GFCM Data Collection Reference Framework (DCRF).
- Estimation of volume of discards and unwanted catches, to be reported at metier level 6. The recommendation of RCM Med&BS 2009 on discard significance by metier will be followed.
- Collection of fishing activity complementary data required for scientific use (see Text box 2A).

Important métiers

The main métiers exercised by Cyprus fishing vessels by area were identified following the ranking procedure described in the old DCF Decision 2010/93/EU. Data used for the ranking were the average data on landings, value and effort over the period 2013-2015. The métiers selected are the following:

OTB_DEF_>=40_0_0(GSA25), LLD_LPF_0_0_0 (all GSAs)
 GTR_DEF_>=16_0_0 (GSA25), GNS_DEF_>=16_0_0 (GSA25)
 OTB_DEF_>=40_0_0 (37.2.2 – GSAs 13,14,15,21) – bilateral agreement (see Table 7C of WP)

PS_SPF_>=14_0_0 will be included in biological sampling in case it is exercised.

Sampling design

OTB_DEF(GSA25):

Sampling of this métier will involve:

- Concurrent length sampling of catches for selected stocks
- Estimation of discards and unwanted catches
- Sampling of unsorted landings and recording of all species quantities as complementary data

- Collection of samples for ageing, weight, sex and maturity for stocks selected.

Target population is all catches made by the two Cyprus licensed vessels operating this métier in GSA25, with full coverage expected. Description of sampling frame and plan is provided in Tables 4A&4B, where sampling stratum ID code is OTB_GSA25. For each sampled trip a multistage sampling, with simple random sampling at each stage, will be performed for the selection of i. Hauls to be sampled (if onboard), ii. Boxes to be sampled (by species by commercial category), iii. Individual fish to be length-sampled by box and iv. Individual fish to be selected for age, weight, sex and maturity, through length-stratified sub-sampling.

LLD_LPF:

LLD_LPF will be further disaggregated to the regionally agreed métiers at level 7, based on target species. Due to the seasonal fishery of ALB, trips of this métier may be selected *a priori*, following communication with the fishermen. Trips targeting SWO or BFT cannot be selected in advance, therefore sampling will involve both métiers at level 7. The relevant sampling stratum ID codes in Tables 4A& 4B are LLD_LP_ALB and LLD_LP_SWO&BFT.

Trips will be selected by randomly selecting dates; following communication with the relevant vessel owners, the trips closest to the selected dates will be sampled.

Sampling will involve:

- Concurrent length sampling of catches for all stocks
- Estimation of discards and unwanted catches
- Collection of samples for weight, sex and maturity for selected stocks (see WP Table 1B).

For LLD_LP_ALB, the target population is all catches made by the Cyprus licensed vessels operating this métier; full coverage is expected. For this métier, only one fishing operation takes place per fishing trip. Following the random selection of vessels and trips (PSU), boxes (if applicable) and individual fish will be randomly selected for length sampling. Where applicable, individual fish will be selected for weight, sex and maturity through length-stratified sub-sampling.

For LLD_LP_SWO&BFT, the target population is all catches made by the Cyprus licensed vessels operating these métiers. Considering that some landings take place in foreign ports, it is expected that sampling will cover around 95% of target population. Following random selection of PSU, all hauls will be sampled (in case of onboard sampling), in which individuals will be length sampled (all/randomly selected). Where applicable, individual fish will be selected for weight, sex and maturity.

Demersal fishery with polyvalent passive gears

Selected métiers GTR_DEF and GNS_DEF are exercised by artisanal vessels, which are involved in many métiers. In this case it cannot be known *a priori* which trips will be assigned to each métier. Sampling will cover the demersal fishery operating with polyvalent passive gears, and all métiers encountered will be recorded. The PSU will be the sampling site on a single day, with secondary sampling unit the cluster of trips within the PSU. The aim is to sample all vessels encountered during sampling. The relevant sampling stratum ID code in Tables 4A& 4B is **LS_PG_DEF**.

Sampling of this fishery will involve:

- Concurrent length sampling of catches for selected stocks
- Estimation of discards and unwanted catches for all stocks (based on questionnaires)
- Sampling unsorted landings/retained catches as complementary data required for the scientific use of fishing activity data collected under Control Regulation
- Recording effort variables not collected under Control Regulation
- Collection of samples for ageing, weight, sex and maturity for stocks selected (see WP Table 1B).

Multistage sampling will be performed, for i. Random selection of PSU, ii. Sampling of all vessels, iii. Length sampling individuals (randomly/all) and iv. Selecting individual fish for age, weight, sex and maturity, through length-stratified sub-sampling.

Expected execution difficulties: Refusals for on-board sampling, altered fishing behaviour when observers on-board, staff availability, refusals of selling fish for lab samples.

Quantitative targets: To establish and achieve the “optimal” sample sizes, after which the gain of precision is not meaningful anymore. For achieving sampling optimization the tool devised by the MARE/2014/19 project (Med&BS) will be used, as recommended by RCM Med&BS-LP 2016.

(max 900 words per Region)