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

Commission Implementing Decision (EU) 2019/909 of 18 February 2019 establishing the list of mandatory research surveys and thresholds for the purposes of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors

Commission Delegated Decision (EU) 2019/910 of 13 March 2019

establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors

Commission Implementing Decision (EU) 2016/1701 of 19 August 2016laying 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 of 24 August 2018 laying down rules on the format and timetables for the submission of annual data collection reports in the fisheries and aquaculture sectors.

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

2021

Version 1 – Rome, 31st May 2022

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SECTION 1: BIOLOGICAL DATA

# Text Box 1C: Sampling intensity for biological variables

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| General comment: This box fulfils paragraph 2 point (a)(i)(ii)(iii) of Chapter III, of the Annex of the Delegated Decision (EU) 2019/910 and Chapter I of the Implementing Decision (EU) 2019/909 on the multiannual Union programme; and Article 2, Article 4 paragraph 1 and Article 8 of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is applicable to the Annual Report. |
| Member State should provide by Region/RFMO/RFO/IO:  A) MEDITERRANEAN  1. Evidence of data quality assurance  Information on the methodology used to assure the quality of the data collected is reported in Table 5A. Furthermore, the results of the working groups, workshops and projects attended by Italian researchers - with expertise in the specific fields related to the different tasks - have been taken into account (see Table 7A.).  The "Guidelines for the biological data collection of the National Work Plan for data collection” were used as reference in the sampling process of the commercial catch. These guidelines are available on the Italian DCF website [*http://dcf-italia.cnr.it/*](http://dcf-italia.cnr.it/) and *https://dcf-italia.cnr.it/web/#/links/linee-guida.* In addition, the following complementary documentation was considered (<http://www.fao.org/gfcm/publications/en/> and https://datacollection.jrc.ec.europa.eu/docs/regional-grants):   * the outputs of the grant EU-MARE 2014/19 *Strengthening regional cooperation in the area of fisheries data collection* * the outputs of the grant MARE/2016/22 STREAM: *STrengthening REgional cooperation in the Area of fisheries biological data collection in the Mediterranean and Black Sea*; * *GFCM Data Collection Reference Framework (DCRF). 2018. DCRF manual v. 21.2.* * *GFCM Monitoring incidental catch of vulnerable species in the Mediterranean and the Black Sea - Methodology for data collection.* [*https://www.fao.org/gfcm/data/vulnerablespecies/es/*](https://www.fao.org/gfcm/data/vulnerablespecies/es/) * *GFCM Monitoring discards in Mediterranean and Black Sea fisheries: Methodology for data collection. Technical Paper No. 639.* [*https://www.fao.org/gfcm/publications/series/technical-paper/639/en*/](https://www.fao.org/gfcm/publications/series/technical-paper/639/en/) * Handbook on fish age determination: a Mediterranean experience (Carbonara and Follesa, FAO, 2019); [*https://www.fao.org/publications/card/en/c/CA2745EN*/](https://www.fao.org/publications/card/en/c/CA2745EN/) * Atlas of the maturity stages of Mediterranean fishery resources (Follesa and Carbonara, FAO, 2019).   [*https://www.fao.org/publications/card/en/c/CA2740EN/*](https://www.fao.org/publications/card/en/c/CA2740EN/)  2. Deviations from the Work Plan  The sampling intensity of the biological variables and the field operations related to the sample collection were impacted by the restrictions due to the COVID\_19 pandemic in all the GSAs. Although less critical than in 2020, COVID in 2021 allowed the performance of some activities, but not following the usual procedures. It was not possible for scientific observers to embark onboard fishing vessels. This restriction continued almost in every GSA, given the implementation of social distancing rules. For this reason, the observations onboard were carried out, where possible, using a self-sampling approach, based on the fishermen collaboration to collecting information on catch and discards. Sampling at landing ports was also in some cases hampered by restriction to the movements of scientists and technicians. Nevertheless, the commercial fraction was sampled as usual almost in all the GSAs. However, given the restrictions to embark, more samples than usual had to be purchased and subsequently analysed at laboratories. The restrictions of COVID \_19 pandemic also impacted the activities at the laboratories due to the restrictions for social distancing. In some Institutes these rules halved the possibilities to using laboratories. Thus, the process of samples’ analyses was slowed down. Despite this difficult situation it has been possible to reach or get close to the target number of samples in several |

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| GSAs. Besides the mentioned difficulties due to COVID-19 pandemic, general justifications for deviations from the Work Plan in terms of planned vs. achieved number of samplings are often due to the irregular activity of the fishing sector in this pandemic period (e.g. reduction of the activity/target changes). Furthermore, fishing activity of some selected metiers is concentrated only in a small period of the year and after this period the fleet can change gears and targets species.  Detailed comments on deviations on particular species/stocks are included in the AR Comments column in Table 1C.  “Under sampling” was due for some species and in some GSA by the impossibility of sampling discards on board. E.g. *Sardinella aurita* mostly discarded at sea. In other cases undersampling was due by the reduced or sporadic catches in some GSAs, as for *Lophius piscatorius*, *Dicentrarchus labrax, Mullus surmuletus Sphyraena sphyranea, Pagellus bogaraveo,etc.*  "Over-sampling" of some biological variables (e.g. length, but also maturity or sex) may be due to factors, such as i) adequately cover all classes of the length frequency distribution of the species considered; ii) the metier approach; iii) the size of sampled vessels; iv) the seasonality; v) the sampling of substrata at local geographical level (local fisheries) and the vi) concurrent sampling. It should be also considered that the estimate of the number of individuals to be sampled in the WP was based on the observations in the previous three years, but some species showed greater abundance and therefore it was possible to proceed with a more robust sampling.  Regarding *large pelagics*: the targets provided by the Work Plan resulted to be fully achieved for the species swordfish and bluefin tuna, respectively to 128% and 103%. However, for some species it was not possible to achieve the minimum number expected of the measurement of length, for the following reasons:   * dolphinfish (DOL): the number of individuals sampled was lower than expected due to the difficulty of sampling a large number of specimens in a very short fishing period: in fact, most of the catches are concentrated in a very short period of time; nevertheless 74% of the planned was achieved. * Albacore (ALB): the number of individuals sampled is lower than expected because the majority of the fishing activity takes place in offshore areas and the landing takes place in non-Italian ports, where it is not possible to program surveys upon landing. * Istiophoridae (BIL): this is a species caught mainly on an occasional basis so it is unpredictable to carry out sampling. * A. rochei (BLT): it is a species that does not constitute a fishing target, and is therefore only found as an accessory species. * A. thazard (FRI): this species is rarely found in Italian seas.   Regarding methods for collecting the data, as already stated it has not been possible to send observers and samplers on board commercial fishing vessels, therefore the self sampling approach was used in most of the cases, with the consideration that in particular the data on discards could be affected. This has been particularly relevant for data on *Prionace glauca.*  No deviation were recorded in the methods used to estimating the parameters.  A number of additional species respect to the Work Plan were sampled through scientific surveys, details are given in table 1C.  Sampling for length in DRES surveys. DRES survey is divided in Maritime Districts inside the GSA, therefore the name of the Maritime District where the data comes from has been added in the column “comments”.  *Trachurus trachurus* ageing in GSA 10. There was a lack of an experienced reader for this species in this area, this will be overcome in the future through exchanges of otoliths with other labs in other GSAs  3. Actions to avoid deviations.  In the future, actions will be aimed at ensuring a coverage as consistent as possible with the sampling strategy. Moreover, actions will be taken to mitigate, as far as possible, under and over samplings. Finally, the tools made available by the following projects will be considered for their application also for sampling plans and for sampling optimization: MARE / 2016/22 "Strengthening regional cooperation in the area of fisheries data collection ", Annex 1" Biological data collection in EU waters: “STrengthening REgional cooperation in the area of fisheries biological data collection in the Mediterranean and Black Sea, STREAM (SI2.770115)”, and the ongoing project “MARE/2020/08 (SI2.705484) - Strengthening regional cooperation in the area of fisheries data collection in the Med & BS-Streamline”. The administrative procedures leading to the annual agreement for the implementation of the activities in 2021 took a long more time than foreseen. For the future, the National Administration will award a unique contract for 48 months thus avoiding delays. |

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| Some of the species listed in Table 1A are not so frequent in some GSA therefore for the future WP only GSAs should be used to avoid the problem of species listed as abundant and not sampled in some GSA.  Member State to describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section is not applicable.  B) OTHER REGIONS   1. Evidence of data quality assurance   In 2021, 8 vessels operated outside the Mediterranean waters. 7 vessels operated in the Atlantic Ocean and their activity, targeting mainly cephalopods (OTB\_CEP\_>=70\_0\_0), depends on fisheries agreements in place and may vary every year. One single vessel, (PS\_LPF\_0\_0) targeting mainly tuna, operated in the IOTC Region (Indian Ocean FAO 51.7). Available landing and effort data of vessels operating both in the CECAF and IOTC areas are sent to the RCG Long Distance Fishery. Data are also made available through the FDI data call. According to RCG LDF 2018, biological sampling is due only under a SFPA. Considering that the EU fishery, developed in Guinea-Bissau, was closed due to the end of the SFPA UE-Guinea Bissau in November 2017, there was no obligation for Italy for carrying out biological sampling. As concluded by RCG LDF 2018, only in case that the new SFPA will be signed and the Italian fishery reinitiated, the fishery data should be reviewed for potential sampling by Italy.   1. Deviations from the Work Plan Not applicable 2. Actions to avoid deviations. Not applicable   C) EEL   1. Evidence of data quality assurance   With the support of Regional Administrations of the 9 Eel Management Units it was possible to interview fishermen (both in person and by telephone) and to proceed to samplings. All activities were therefore carried out according to the National Work Plan for data collection. Furthermore, procedures were compared within the EIFAAC/ICES/GFCM Working Group on Eel and with related workshops, taking into account discussions emerged in these expert groups.   1. Deviations from the Work Plan   No deviations from the Work Plan occurred   1. Action to avoid deviations   The inclusion Regional Administration has been and is a key factor for the execution of this activity.  (max. 1000 words per Region/RFMO/RFO/IO) |
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SECTION 1: BIOLOGICAL DATA

# Text Box 1D - Recreational fisheries

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| General comment: This box fulfills paragraph 2 point (a) (iv) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 3 and Article 4 paragraph 1 of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is applicable to the Annual |

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| 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. |
| A) LARGE PELAGICS   1. Description of the target population   The species of large pelagics caught by recreational fishing and subject to data collection are reported in Table 1D.  The target population consists of boats potentially dedicated to fishing for large pelagics, identified on the basis of a series of indications (presence of rod holders, divergents, specific stickers of fishermen's organizations, etc.), as according to the pilot study (2004) previously taken as a reference, with subsequent expansion to the current number of species sampled.. Overall, the survey identified a universe of boats potentially dedicated to fishing for large pelagics equal to 2953. The COVID restrictions made it often impossible to have a vis-a vis meetings with the operators to be interviewed and to carry out on the dock surveys, regarding both fishing activities and the recreational and sport fishing fleet. Nevertheless, the surveyors were able to collect at least a good part of the data, both through interviews carried out remotely and through meetings on the dock.   1. Type of survey   Table 1D describes the methodology and the type of survey used.  Information on the methodology used to ensure the quality of the data collected is reported in Table 5A. According to the Work Plan 2017-2019, "surveys will be conducted utilizing also a sampling strategy based on a panel of anglers”, thereafter sample data will be extrapolated to the whole “universe”. The universe will be the official list of recreational fishermen as provided by the Italian Ministry of Agricultural, Food, Forestry and Tourism Policies. Estimation will be based on the availability of this reference universe." However, the reference universe, identified in the Mipaaf database, was not considered appropriate as a basis of the statistical survey (lacking in terms of completeness of the records, few variables related to the activity and type of fishing). Given the specificity of the object of the survey it was therefore not possible to adopt the new methodology as programmed in the National Plan, and it was necessary to refer again to the collection methodology considered in the previous years, i.e. the pilot study reported in the publication: DiNatale et al. *Col.Vol.Sci.Pap. ICCAT, 58 (4): 1360-1371 (2005)*.254 interviews were carried out. The interviews were carried out through monitoring in sample ports, . The interviews have been administered distributing specific questionnaires to a panel of fishermen, identified through visits conducted on randomly selected dates and ports, asking for fishermen found available at the moment of the visits. Data were then recovered, as much as possible, thorugh remote connection. This methodology had the aim of giving a first quantitative estimate of the quantities caught and of the percent of catch and release, as requested by EU Map.   1. Data Quality   Information about non-responses and refusals is found in the Work Plan, Table 5A.   1. Data Analysis and processing   Once the population has been defined, by census, on a territorial basis, the port areas have been explored in order to enumerate exhaustively the units present and produce complete lists. A simple random sampling design was used for the selection of the sample units and the extraction of the primary sampling from the lists according to a random procedure without repetition. The determination of the sample size was defined for a confidence level of 95% and a confidence interval (margin of error) of 4.5%.  B) EEL  1. Description of the target population  For recreational fishing targeting the eel species, the activity in Italy is carried out exclusively in the inland waters (rivers, lagoons, lakes), in the 9 EMUs that have adopted Regional Eel Management Plans. |

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| 1. Type of survey   The methodology is based on interviews on a sample basis, with questionnaires requiring data on an annual basis, separately by stage (yellow eel, silver eel) and by fishing gear.  In order to reach a representative sample of anglers and to obtain a sufficient number of interviews for subsequent expansions, the collaboration of Regional Administrations was requested, and the involvement of sport fishing associations, in order to obtain contacts of sport fishermen involved in recreational eel fishing.   1. Data Quality   All methodological activities for catch monitoring, for data processing, for evaluation of effort parameters were conducted with reference to the provisions of the Work Plan. Information on the methodology used to assure the quality of the data collected is reported in Table 5A.   1. Data Analysis and processing   Estimate of the total amount of eel recreational fishers were obtained on the basis of licenses released by the Regional Administrations and checked against the information provided by various recreational fishers organizations. The survey allowed to collect information related to eel recreational fishing in terms of gears used, periodicity and consistency of catches. To assess the Catch Per Effort Unit (CPUS) an average of the kg of eel caught was calculated. The results are presented reported by EMU and habitat type.  (max. 900 words per survey) |

SECTION 1: BIOLOGICAL DATA

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

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| General comment: This box fulfils paragraph 4 of Chapter II of the Annex of the Implementing Decision (EU) 2019/909 on the multiannual Union programme and Article 2 and Article 4 paragraph (3) point (a) of the Implementing Decision (EU) 2016/1701 on the format of the WP. |
| 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  According to EU Reg. 1004/2017, “recreational fisheries’ means non-commercial fishing activities exploiting marine biological resources for recreation, tourism or sport”. This definition will be considered for the aim of the present pilot study.  The main aim of the pilot study is to assess the share of catches from recreational fisheries in relation to commercial catches for all species for which catch estimates are required under this work plan. The final outcomes of the pilot study will be discussed at marine region level and will propose a design to extent for future national surveys of recreational fisheries. Other objectives of the pilot study are:  a) to better tune and partially modify the methodology previously implemented during the first phase in 2018- 2019 |

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| 1. to determine the number of recreational fishermen, cross-checking and integrating the current list of registered fishermen (Mipaaft Database); to monitor fishing activity in terms of gears/equipment used and time dedicated to this activity; to collect some basic information on recreational catches (species, weight and number), including some important species for the recreational fishing only; to collect macro-data on the overall economic impact of the activity. 2. to supply this data as requested by the Commission Implementing Decision (EU) 2019/909 “Member States shall provide catch estimates from existing recreational fishery surveys, including those carried out under the Data Collection Framework or from an additional pilot study, within two years from the date on which this Decision takes effect”.   2. Duration of pilot study  The First phase of pilot study was implemented in 2018-2019, the second phase was implemented during the second half of 2020 and will be concluded in 2021. Methodology and expected outcomes of pilot study  The pilot study was articulated in 2 Phases: I Phase (2018-2019):   * Step 1. Analysis and validation of the Register of fishermen of the Ministry of Agricultural, Food and Forestry Policies (Min.Decr. 6 Dec 2010) * Step 2. Estimation of variables of interest through: Expert interviews (elicitation techniques); Sample survey at national scale   Some constraints carrying out the first phase has suggested to implement a new sample design  A second phase (2020-2021) was then proposed to tune and implement the methodology previously adopted, in view of a final proposal for a routine survey in the new EU Map  II Phase (2020-2021)   * I step - Telephone survey (2020) * II step - Sample survey (2021)   3. Methodology and expected outcomes of pilot study  The first step was a telephone survey to a sample of families, stratified according to population density and extension of the coastline of the corresponding region. The tehephone survey had the aim of collecting some key information on recreational activity (practice of the activity yes/no, possible registration in the Mipaaft database, area and season of fishing etc.).  On the base of the results of the first phase, on a panel of available anglers casually selected, the second phase will consist on the distribution of a monthly logbook, for a whole fishing season, for the estimation of catches, fishing effort, and other accessory information.  The design of the questionnaire will follow the guidelines and glossary developed by the ICES WGRFS. The GFCM “Handbook for recreational fisheries data collection in the Mediterranean and Black Sea” will also be taken into consideration.  Both data collection methods will be implemented following guidelines for good practices documented by experts groups (WGRFS, Eurostat).  The final results of the pilot study will be presented in a scientific report, with a complete description of methodologies applied and in a set of tables with complete estimates according to the main objectives of the pilot study. Final estimates will be accompanied by quality indicators related to bias and precision, according to the Quality Assessment Tool (QAT) developed by the WGRFS.  (max 900 words) |
| Brief description of the results obtained (including deviations from planned and justifications as to why if this was not the case). |

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| The results obtained during the second phase has permitted to compensate the lacks of the Ministerial Register of Fishermen and estimate a reference universe of anglers. Once acquired this estimated universe, the second survey will estimate quantities and articulation of the catches.   1. Achievement of the original expected outcomes of pilot study and justification if this was not the case.   The pilot study was originally scheduled for two years, 2017 and 2018. Due to some administrative reasons and to the late availability of the ministerial database, the pilot study was implemented in 2018 and it has been finalized in June 2019.  As a result of the first phase, it emerged that it was not advisable to consider the national Register as the universe of recreational fishermen but to carry out an ad hoc survey through a second phase of the pilot study.. Therefore, a national telephone survey was carried out in 2020 by a specialized company. The study allowed to estimate with reasonable statistical reliability the number and distribution of fishermen and the intensity of their activity. The results are also compared with those resulting from other surveys conducted during the same periods.  The same type of survey carried out in 2019 has been conducted in 2021 in order to refine and consolidate the results.   1. Incorporation of results from pilot study into regular sampling by the Member State.   The results of the second phase of the study, once carried out the second step (field survey) will allow to structure a regular sampling program for data collection. This part is not concluded, and it will be discussed and hamonised in 2022 through a series of meeting in the framework of RCG Med&BS as for instance the Joint Workshop on Recreational Fisheries (Recommendation n. 3 RCG Med&amp;BS 2021), to be organised in 2022. This will allow to define a roadmap towards a consolidated procedure to estimate the number of recreational fishermen by sub-region and to define a list of priority species by sub-region.  (max 900 words) |

SECTION 1: BIOLOGICAL DATA

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

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| General comment: This box fulfills paragraph 2 points (b) and (c) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 of the Implementing Decision (EU) 2016/1701 on the format of the WP. |
| General comment: This box is applicable to the Annual Report. |
| 1. Method selected for collecting data.  In Italy, 9 EMUs have been identified according to Eel Regulation (EC 1100/2007). The monitoring and management of these EMUs are decentralized, as, according to national law, administrative regions are in charge for monitoring and management of internal waters. Access to freshwater areas/rivers involve regional administrations that should provide data.  The objective of the fifth year of the pilot study (2021) was to implement the monitoring protocols to new EMUs: EMU-TOS (costal lagoon habitat) and I EMU-ER Emilia Romagna (riverine environment).  (max 250 words per Area) |
| 2. Were the planned number achieved? Yes/ No Yes, according to the following considerations: *Recruitment monitoring – glass eel*  EMU Toscana: Laguna di Orbetello (LGN): The monitoring site is the Fibbia channel. The monitoring was carried out with 2 glass eel fyke-nets, for 3 months, from October till December 2021.  EMU Emilia Romagna: Fiume Po (RIV): The monitoring was carried out in 3 sites on the Po River, and carried out with 2 glass eel fyke- nets in each site. Monitoring extended for 3 month, from October till December 2021.  *Monitoring of yellow eel*  EMU Toscana: Laguna di Orbetello (LGN): The monitoring was carried out installing a square net enclosure (100 m each side, h. 1.8 m, 12 mm mesh), thus enclosing a lagoon area of about 1.0 ha. Within the enclosure 16 fyke- nets were installed. Monitoring was carried out in October 2021.  EMU Emilia Romagna: Fiume Po (RIV): The monitoring was carried out in 3 different sites on the Po River, by fyke-nets, installed along the bank in 3 parallel rows of 10 fyke-nets, for a total of 30 fyke-nets, in each site. Moitoring was carried out in October 2021.  *Monitoring of silver eel*  EMU Toscana: Laguna di Orbetello (LGN): The monitoring site is the Fibbia channel. The monitoring was carried out by 2 fyke-nets. Monitoring extended for 3 months, from October till December 2021  EMU Emilia Romagna: Fiume Po (RIV): The monitoring was carried out in 3 sites on the Po River, by fykenets, installed along the banks in 3 parallel rows of 10 fyke-nets, for a total of 30 fyke-nets, in each site. Monitoring extended for 3 months, from October till December 2021. |

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| *Results*.  The monitoring carried out in 2021 allowed to consolidate the monitoring techniques, and to test statistical procedures for calculation of recruitment, standing stock and escapement at the EMU level. This will allow the incorporation of results from the pilot study into regular sampling by the Member State in all EMUs  (max 500 words per Area) |

SECTION 1: BIOLOGICAL DATA

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

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| General Comment: This box fulfils paragraph 3 point (a) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910, on the multiannual Union programme; and Article 2 of the Implementing Decision (EU) 2016/1701 on the format of the WP. 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. |
| Regulation 812/2004 was repealed and replaced in June 2019 by the Technical Conservation Measures Regulation (Regulation (EU) 2019/1241) and PETS bycatch monitoring was further implemented through the EU-MAP (Regulation (EU) 2017/1004), a number of incidental catches have been recorded during ad hoc monitoring programme carried out on board of PTM\_SPF\_>=20\_0\_0.   1. Results   Table 1F provides information on activities performed in 2021. In this year no specific observation activity on PET was foreseen with the exception of pelagic trawlers PTM\_SPF\_>=20\_0\_0. In 2021 from January to December 3 observers monitored 210 fishing trips by pelagic trawlers in GSA 17. During this period incidental catches of *Squalus acanthias* (12), *Myliobatis aquila* (8), *Alopias vulpinus* (1), *Pteroplatytrygon violacea* (3) were recorded. Moreover 8 sea turtles *Caretta caretta* and one bottlenose dolphin *Tursiops truncatus* were registerd while no incidental catch of sea birds was recorded.   1. Deviations from Work Plan   No vessel boarding could be conducted throughout 2021. Therefore, data collection was conducted through telephone and dockside interviews (where possible) with crew . In GSA 17 incidental catch data were collected via 210 interviews from January to December 2021, while in GSA 16, due to COVID and administrative reasons no interviews were conducted.  Explain any deviations from the proposed:   * sampling intensity * methods used for collecting data   3. Data quality   * Does the onboard observer protocol contain a check for rare specimens in the catch at opening of the codend? No * 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.   Yes. For the pelagic trawlers in GSA 16 and 17, the sampling design is following the recommendations provided by the ICES WGBYC and the Italian obligations under the Council Regulation (EC) 812/2004 which states that ‘Member States shall design and implement monitoring schemes for incidental catches of cetaceans using observers on board with an overall length of 15 m or over’ for selected fisheries listed in its Annex III |

* Are data quality issues taken into account?

Once per month, data are quality checked by a trained technician. Specifically, both hardcopy and digital information are carefully screened and potential omissions are promptly communicated to the observer.

* How are data (and samples) stored

As far as the monitoring of bycatch according to EC Reg. 812/2004, all data collected by the observers are included in a protocol previously standardized during the editions of the BYCATCH project. Subsequently the data was sent, checked and archived in an historical database of the CNR-IRBIM. An archive was also provided for the photographic material of all the incidental catches, the sightings of dolphins and birds recorded during fishing operations and navigation on board fishing vessels.

(max 900 words)

SECTION 1: BIOLOGICAL DATA

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

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| General comment: This Box fulfills paragraph 3 point (c) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 and Article 4 paragraph (3) point (b) of the Implementing Decision (EU) 2016/1701 on the format of the WP. |
| 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. |
| 2 Pilot studies performed:  A) Evaluation of the effects of the fishing sector on the marine ecosystem  Ecosystems are spatially heterogeneous and spatial patterns and processes are important to ecosystem structure and function, whereas the distribution of fishing activities depends on the distribution of the targeted resource. Mediterranean regulations very often have a spatial component explicitly through time and area closures. Spatial management tools are used to protect spawning aggregations, to reduce bycatch, or to meet other single-species objectives. Therefore, it is essential to provide ecosystem indicators for spatial effort to define and to evaluate management measures.  1. Aim of pilot study  Within the Italian WP, the following ecosystem indicators for spatial effort will be estimated:  “Distribution of fishing activities”. It will be based on the total area of grids (3 km x 3 km) within which VMS records were obtained, each month. This indicator will apply MCDA (Multi-Criteria Decision Analysis) to estimate the contribution of the small-scale fisheries, attempting to provide an overall representation of fishing effort.  “Swept area of fishing activities”. It will be based on assessment of fishing effort by the total monthly swept area with respect to the 3 km x 3 km grid, for the portion of the fleet equipped by VMS and/or AIS.  “Aggregation of fishing activities”. It will be based on the total area of grids (3 km x 3 km) within which 90% of VMS records were obtained, each month.  •“Gini’s Index of the fishing pattern”. It will be represented by the value of the Gini’s index computed, at a monthly scale, on the fishing effort pattern (hours of fishing per cell) returned within the computation of the indicators 5. |

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| “Areas not impacted by mobile bottom gears”. Indicator of the area of seabed that has not been impacted by mobile bottom fishing gears in the last year. It will be computed also at a monthly scale.  “Substrates not impacted by mobile bottom gears”. Indicator of the area of seabed that has not been impacted by mobile bottom fishing gears in the last year with respect to the type of sea bottom substrates (fishing effort will be mapped on substrates distributions) and or bathymetric stratum (0– 20m, 20–50m, 50–80m, 80–130m, 130– 200 m, 200–500 m, 500–800 m, 800–1000 m, > 1000m). It will be computed at both annual and monthly scale   1. Duration of pilot study 2020 and 2021 2. Methodology and expected outcomes of pilot study   Methodological details are available on: <http://dcf-italia.cnr.it/main/docs/14>  B) Stomach content analysis of European hake *Merluccius merluccius*   1. Aim of pilot study   Chapter III.3.C the new EU Dec. 1251/2016 specified that “Data for estimating the level of fishing and the impact of fishing activities on marine biological resources and on marine ecosystems, such as 16 effects on non- commercial species, predator-prey relationships and natural mortality of fish species in each marine region”, should be collected. Following this issue, the main objective of Pilot Study 2 is to increase the understandings on the diet and the preys sustaining the life cycle of the European hake*, M. merluccius*. The outcomes will provide useful elements to evaluate some parameters of population dynamics of the species   1. Duration of pilot study   The Pilot Study started in 2018, with the standardization of the protocols of data collection and analysis. The sampling of stomach contents, started in the second semester of 2018, continued in 2019 (all year), 2020 and 2021. All the Italian GSAs are involved in this Study.  The Pilot Study was carried out in the years 2018-2019, involved all the Italian GSAs, and investigated the diet of M. merluccius by means of stomach content analysis. In the first months of 2018 the activities performed were mainly aimed at standardizing the working protocols, validating the procedures of identification of preys and the analysis of data., while in the second semester a first sampling phase and stomach content analysis was carried out. The results of 2018 were useful to finalise the sampling scheme; since the year 2019 the collection and analysis of the stomach contents of hake was carried out all the year.   1. Methodology and expected outcomes of pilot study   The methodology follows the indications of the EU Project MARE/2014/19 -SI2.705484. Sampling was stratified according to five size classes of hake: < 10.5 cm; 10.5 – 15 cm; 15.5 – 20 cm; 20.5 – 32.5 cm; > 32.5 cm. In all the italian GSAs, samples came from both the MEDITS trawl survey and the biological sampling. The stomach repletion was macroscopically estimated (1: empty; 2: full < 50%; 3: full >50%; 4: bursting; 5: evaginated). The stomach contents were identified to the lowest taxonomic level possible. The following dietary indices were computed for each prey: Frequency of occurrence (%F); Percentage in weight (%P); Percentage in number (%N); Index of Relative Importance, IRI=%F(%N+%P).  *(max 900 words)* |
| Brief description of the results obtained (including deviations from planned and justifications as to why if this was not the case).  A) Evaluation of the effects of the fishing sector on the marine ecosystem   1. Achievement of the original expected outcomes of pilot study and justification if this was not the case   Expected outcomes (see aims above) were achieved as the acquisition of VMS and Logbook data was performed in proper time   1. Incorporation of results from pilot study into regular sampling by the MS |

All results have been incorporated into regular sampling with the exception of fishing effort exerted by fishing vessels not provided with VMS.

B) Stomach content analysis of European hake *Merluccius merluccius*

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

The diet of the European hake in the Italian GSAs is mostly composed by Bony Fish (about 78 IRI%), followed by Mysids (8%), Crustacean Decapods (7%) and Euphausiids (6%); the other taxa (Cephalopods, Isopods, Amphipods, Copepods, Bivalves, Gastropods) played a minor role in the diet. This pattern (clear predominance of Bony Fish) is similar at GSA level, with the exception of a greater importance of Mysids in the GSA 16 and Euphausiids in the GSA 17 (Pomo Pit area). The the diet is characterized by evident ontogenetic changes. The specimens of the first size class (< 10.5 cm TL) mainly preyed small Crustaceans, like Euphausiids and Mysids; Bony Fishes were present in the stomachs of the hakes of all the size classes, but they dominated the diet of the specimens greater than 15 cm TL.

With reference to the Work Plan, all the planned activities have been implemented. In spite of the operational difficulties, both related to the field and laboratory activities, due to the Covid\_19 pandemic situation, it was possible to achieve the planned sampling plan.

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

It is suggested to continue in monitoring of the diet of *M. merluccius* and the pool of trophic resources. It would be of interest also the study the diet of the main predators, a source of natural mortality. On this aspect, the outcomes of the EU Projects STREAM and STREAMLINE could provide useful indications for the methodology to be applied.

(max 900 words)

SECTION 1: BIOLOGICAL DATA

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

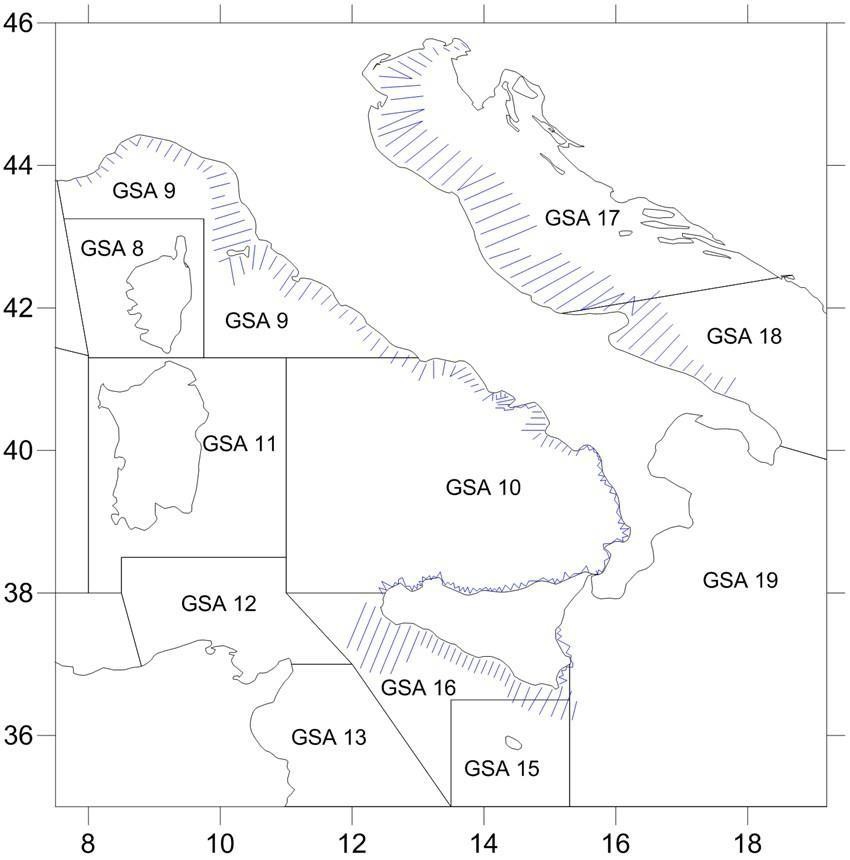
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| General comment: This box fulfills Chapter I of the Annex of the Implementing Decision (EU) 2019/909, on the list of mandatory surveys and thresholds, of the multiannual Union programme; and Article 2 and Article 7 paragraph (3) of the Decision (EU) 2016/1701 on the format of the WP. It is intended to specify which reseach surveys at sea set out in the multiannual Union programme will be carried out. Member States shall specify whether the research survey is included in Chapter I of the Annex of the implementing decision 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. |
| A) MEDITS SURVEY (mandatory survey)   1. Objectives of the survey   The MEDITS programme aims to conduct coordinated bottom-trawl surveys Mediterranean. This bottom trawl survey derives from an EU project started in 1994 at European Mediterranean level (Bertrand et al., 2002), in which all the participants use the same gear, the same sampling protocol and the same methodology. The challenge of MEDITS survey is to provide data useful for describing and quantifying changes in the fish populations, through indices of demography, mortality, spatial occupation, biological traits, thus contributing to the routine stock assessments and the development of management advice tools. One survey should be carried out every year, during spring and beginning of summer.   1. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map)     MEDITS hauls foreseen in the 7 Italian GSA |

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| Overall, MEDITS data shall be processed and analysed in line with the data collected according to the common protocol (MEDITS-Handbook. Version n. 9, 2017), to produce information (i.e. population distribution,  abundance, size composition etc.), on benthic and demersal species found in an area with a depth ranging from 0 to 800 m within the seas adjacent to Italy (in Figure a) the 7 GSA are reported). The working zone (on the  continental shelves and along the upper slopes) has been adopted to cover at best the distribution areas of the  main exploited or potentially exploitable species, considering the administrative and technical constraints of the project. The stations will be distributed in each of the 7 GSA applying a random stratified sampling scheme using as strata the geographical combination of zones and depth. About 670 hauls should be carried out during each annual survey. In order to improve the quality of the MEDITS data and the consistency of the information collected a routine (RoME, Bitetto et al., 2017) has been developed for common use, which rationale has been incorporated in the checks made at JRC level during the data upload and the assessment working groups (STECF-EWG). Regarding the data storage, the FishTrawl webapp (a software system for data input, analysis, import/export, storage, checks), designed for scientific trawl survey data as MEDITS was completed, tested and it is available for common use.   1. For internationally coordinated surveys, describe the participating Member States/ vessels and the relevant international group in charge of planning the survey   Since 2001, the European countries bordering the Mediterranean and Black Sea are obliged to carry out Medits survey yearly in the framework of the EU data collection regulation. Up to now 8 Mediterranean EU countries (Italy, France, Spain, Croatia, Greece, Malta, Slovenia, and Cyprus) and 2 Black Sea EU countries (Romania and Bulgaria) collaborated in the project and permanent links are maintained with relevant bodies (i.e. RCGMed&BS and GFCM).   1. Where applicable, describe the international task-sharing (physical and/or financial) and the cost-sharing agreement used   Targets number of hauls, by area and participating countries, are reported in the Annex III of the Medits Handbook (Version n. 9, 2017, MEDITS Working Group: 177 pp.).   1. Explain where thresholds apply No threshold**.**   (max. 450 words per survey) |
| 1. Graphical representation (map) showing the positions (locations) of the realized samples.   Member State shall provide maps presenting the spatial distribution of the main sampling types obtained during the survey.   |  |  | | --- | --- | | GSA 9 | GSA 10 | | GSA 11 | GSA 16 | | GSA 17 | GSA 18 | | GSA 19 |  | |
| 1. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.   Member State shall provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, Member State shall refer to any status report (e.g. Cruise report).  The MEDITS international coordination reports are available at the following link: (*https*[*://www.sibm.it/MEDITS%202011/principalereports.htm).*](http://www.sibm.it/MEDITS%202011/principalereports.htm))   1. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Member State shall specify in which context the results are used (on routine basis), both on an international as well as on a national context.   The MEDITS trawl survey is aimed at estimating the distribution and abundance of all the species caught and the size structure of 52 species of commercial interest and 32 species of elasmobranchs. The identification of all the organisms with a dimension greater than 1 cm allows to characterize the benthic communities. The methodologies adopted are such as to make the results comparable with the similar surveys carried out in the past years in the same area, as well as in the areas of other European countries of the Mediterranean. The results of the MEDITS surveys are used since several years for:  o the estimation of the biological parameters of the different species; |

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| * the estimation of the spatial distribution of the different species; * the location of essential fish habitats (nursery and spawning areas) and sensitive habitats useful for spatial management; * the study of fish communities (e.g. structure, functional groups, diversity) useful for implementing the ecosystem approach; * the application of stock assessment models and tuning indices to be used in more or less complex stock assessment models. * the application of research projects funded by the European Union such as MED\_UNITS, MINOUW and FAIRSEA project.   In particular, the abundance indices were used in models of stock assessment during the two STECF working groups (STECF EWG 20-09 and 20-15) and to the Working Group on Stock Assessment of Demersal species (WGSAD) of the GFCM on the stock assessment of demersal species in the Mediterranean held at the beginnning of 2021.  The MEDITS campaign also contains information on the distribution and mass of the macro-litter on the seabed, useful for the objectives of the Marine Strategy (Directive 2008/56 / EC).  9. Extended comments (Tables 1G and 1H)  If the Member State has extended AR Comments, these can be placed under this section. If this is the case, a reference to this text box should be provided in the corresponding tables.  The MEDITS 2021 survey was carried out in Italian territorial waters and in the waters of the 7 GSAs, in accordance with the provisions of WP 2020-2021. However, due to the COVID\_19 pandemic and administrative reasons the survey was carried out in most of the GSAs out of the official time period, and generally between September- October.  (max 450 words per survey) |

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| B) MEDIAS SURVEY (mandatory survey)   1. Objectives of the survey   The Mediterranean International Acoustic Surveys (MEDIAS) have been carried out annually since 2009 in order to assess the abundance and spatial distribution of small pelagic species (anchovy - Engraulis encrasicolus, and sardine - Sardina pilchardus), in the Mediterranean Sea by means of acoustic methodology. The MEDIAS programme is internationally coordinated in the ambit of EU MEDIAS action. The aim is the evalutation of the state of small pelagics stocks in the main fisheries areas in Mediterranean.  The historical series obtained in terms of abundance by size and age class are used as tuning index in the stock assessment models of small pelagics in the Mediterranean. The main purpose of these models is to give advice on the state of resources, useful for defining any management measures in Europe.   1. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map) |

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| MEDIAS acoustic surveys design in the 5 Italian GSAs  This research as based on common protocol (MEDIAS-Handbook, 2019) and followed a multidisciplinary approach. MEDIAS surveys were conducted during summer (June-September). Acoustic data were systematically collected along transects (Fig. b) perpendicolar to the coastline, on the continental shelf from a depth of 15-30 m to ~ 200 m, where small pelagic fish are mainly distributed. They were logged using a multi- frequency scientific echo sounder system properly calibrated each year, and processed with the resolution of one nautical mile, through the standard eco-integration method (Simmonds & McLennan, 2005). Biomass calculation was performed at 38 kHz, while other frequencies were used to discriminate fish echoes from noise and from non-target organisms. Analysis of acoustic data was conducted by means of dedicated software for echograms scrutinization. Synoptically with the acoustic data acquisition, net samplings on small pelagic fish were performed by means of a pelagic trawl. The aim is to determine species and size composition of the pelagic biomass (fish sampling is required to collect representative samples of the population from a qualitative  point of view and not a quantitative point of view, as is the case of trawl surveys). Length frequency distribution of all the caught fish species is recorded. Age samples of E. encrasicolus and S. pilchardus were collected and analyzed. Demographic structure and species composition of the pelagic populations has been derived also from pelagic trawls in order to evaluate the abundance and biomass per age, size and sex.Further, for an ecosystem based approach according to MEDIAS protocol environmental monitoring will be performed, thus CTD oceanographic data (temperature, salinity, fluorescence and dissolved oxygen) will be recorded.   1. For internationally coordinated surveys, describe the participating Member States/ vessels and the relevant international group in charge of planning the survey   The MEDIAS acoustic surveys should cover a series of areas in the Mediterranean EU MS (Spain, France, Croatia, Italy, Slovenia and Greece) with a standardised methodology. Italy covered (Fig. b): Adriatic Sea (GSAs 17 and 18; FAO Sub-Divisions 37.2.1 and 37.2.2), Tyrrhenian Sea (GSAs 9 and 10; Sub-Division 37.1.3) and Sicilian Channel (GSA 16; FAO Sub-Division 37.2.2). Concerning the MEDIAS database, in 2016 the Steering Committee has revised the format of existing databases related to acoustic surveys per study area and MEDIAS partners (AcousMed project, Contract MARE/2009/09 SI2). The aim is the proposal of a common database that will serve the needs of acoustic surveys in order to fulfil DCF requirements and standardize the output of surveys estimations. Concerning the availability of data, the reference period will be one year. For MEDIAS surveys, as agreed at regional level (RCMMed&BS Final Report, 2016), the results pertaining to the reference period (n) will be ready at the end of March of the year after (n+1).   1. Where applicable, describe the international task-sharing (physical and/or financial) and the cost-sharing agreement used |



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| The geographical areas that will be covered by the MEDIAS surveys and the respective days at sea per participating countries are reported in Table 1 of the MEDIAS manual (MEDIAS-Handbook, 2019). Italy is performing MEDIAS survey in Slovenian waters through a specific agreement.  5. Explain where thresholds apply No threshold  (max. 450 words per survey) |
| 1. Graphical representation (map) showing the positions (locations) of the realized samples.   Member State shall provide maps presenting the spatial distribution of the main sampling types obtained during the survey.    GSA 17 GSA 18  GSA 9 – 10 GSA 16 |
| 1. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.   Member State shall provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, Member State shall refer to any status report (e.g. Cruise report).  The MEDIAS Steering Committee in 2021 has been in April. The report of MEDIAS 2021 is available at the following link: <http://www.medias-project.eu/medias/website/meetingrep/Meeting-reports/>   1. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Member State shall specify in which context the results are used (on routine basis), both on an international as well as on a national context.   The results of the MEDIAS surveys have been sent to different WGs (e.g. GFCM stock assessment working groups) and data call (e.g. STECF-JRC) and have been used for the assessment of the abundance and spatial distribution of small pelagic species around the Italian seas. The results of the MEDIAS acoustic survey in terms of biomass and abundance by age group were used as a tuning index during the WGSASP – Stock assessment of Small Pelagics of GFCM.   1. Extended comments (Tables 1G and 1H)   If the Member State has extended AR Comments, these can be placed under this section. If this is the case, a reference to this text box should be provided in the corresponding tables.  Tables 1G and 1H have been compiled based on the MEDIAS protocol (MEDIAS Handbook, 2019). Tables 1C, 5A and 7A they have also been filled. In 2021, the acoustic surveys were carried out in the period foreseen by the National Program Work Plan and according to the MEDIAS protocol.   1. (max 450 words per survey) |

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| C) SOLEMON SURVEY (mandatory survey)   1. Objectives of the survey   Solea solea is an important resource in the GFCM area. About 25% of the GFCM landings of soles comes from the Adriatic Sea. In the GSA 17 soles are targeted by “rapido” trawl and set nets, that amount to around 500 boats, for a total of 1,600 fishermen and an annual value of landings of around 40 million Euros. The main survey objectives are: a) Assessing abundance and distribution in GSA17 of sole and other important demersal resources by surveys with “rapido” gears suitable to flatfish and other benthic animals. b) Pursuing the studies on the ecosystem impact of the “rapido” trawl fishery. c) Finally, since the new CFP is going to be more integrated in the EU maritime policy context [COM(2009)163 final], the data, will also contribute to the setting of the GES and targets for the Adriatic Sea in the framework of an ecosystem approach. Thus matching to the requirement of the implementation of the MFSD [DIRECTIVE 2008/56/EC].   1. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map)     Map of SOLEMON stations  The survey should cover sole presence within the GSA 17 that, according to the genetic information pertains as a single stock (Figure 1). All this holds also for benthic fish and shellfish of commercial interest, including rays and other selachians, since EU greatly focuses on such vulnerable resources. Survey should be carried out based on the protocol used since 2005 (SoleMon Survey – Instruction Manual - Version 4, July, 2019; https://podaci.ribarstvo.hr/files/SOLEMON-Handbook\_2019\_Ver\_4.pdf.) and utilizing the same gear. The gear is a modified beam trawl named as “rapido” trawl, and should be appositely planned to fish on different types of bottom. The research vessel should utilize two gears simultaneously in each haul.   1. For internationally coordinated surveys, describe the participating Member States/ vessels and the relevant international group in charge of planning the survey   As sole stock is shared among Italy, Slovenia and Croatia in GSA 17. Data are shared in WGs, both at EU and GFCM level, and with all participants to the AdriaMed project through common database AtrIS and Trust. |

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| 1. Where applicable, describe the international task-sharing (physical and/or financial) and the cost-sharing agreement used   Targets number of hauls, by area and participating countries, are reported in the Solemon Manual (SoleMon Survey – Instruction Manual - Version 4, July, 2019; https://podaci.ribarstvo.hr/files/SOLEMON- Handbook\_2019\_Ver\_4.pdf).   1. Explain where thresholds apply No Threshold   (max. 450 words per survey) |
| 1. Graphical representation (map) showing the positions (locations) of the realized samples.   Member State shall provide maps presenting the spatial distribution of the main sampling types obtained during the survey.  See above the map of the survey, due to bad weather, COVID and reduced availability of research vessel time it has not been possible to cover 9 stations on the Italian side and 6 station in Croatian territorial waters. Stations in Slovenian territorial waters were performed.  Immagine che contiene mappa  Descrizione generata automaticamente  GSA17 x is indicating stations not covered in 2021. |
| 1. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.   The SoleMon campaign is internationally coordinated within the ICES Working Group on Beam Trawl Surveys (WGBEAM) since 2009. In 2020 the coordination meeting took place remotely. <https://www.ices.dk/sites/pub/Publication%20Reports/Forms/DispForm.aspx?ID=36681>)   1. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Member State shall specify in which context the results are used (on routine basis), both on an international as well as on a national context.   Collected data on *S. solea*, *S. mantis* and *S. officinalis* have been sent to the stock assessment working groups both under GFCM SAC and STECF.   1. Extended comments (Tables 1G and 1H)   If the Member State has extended AR Comments, these can be placed under this section. If this is the case, a reference to this text box should be provided in the corresponding tables.  (max 450 words per survey) |

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| D) DRES SURVEY (non-mandatory survey)   1. Objectives of the survey   Two management plans have been adopted in Italy through the Ministerial Decree of 24/07/2015 and the EC Regulation (EC) 2016/2376 (discard plan) for hydraulic dredges targeting the striped venus clam (Chamelea gallina. Both plans highlight the need to conduct a standardized annual survey (scientific survey), aimed at assessing the state of the resource and the effectiveness of the technical measures adopted. In the central Tyrrhenian Sea and, to a less extent, in the North Adriatic the hydraulic dredges also target the razor clam Ensis minor. This specie is usually caught within 0.3 nm from the coast at a maximum depth of 4-6 m. Scientific surveys shall be conducted to assess the spatial distribution of the two species. Information from surveys combined with those from commercial data (landings) are necessary for stock assessment and to define the reference points for management. The main biometric measurements (length and weight) shall be recorded for the two species. Additionally, biological information (sex ratio, maturity, length-weight relationship etc.) have been previously collected in the 2019 for the striped venus, which has, in derogation, a minimum conservation reference size (22 mm).   1. Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation (map)     National Plan for DRES survey for *C. gallina* in 2021  The recent surveys (2017 onwards) have been conducted following an operating standard protocol used on a national scale (DRES survey manual version 2.2, 2018). Commercial vessels are used to conduct the surveys. The commercial hydraulic dredge used to harvest C. gallina and E. minor are similar and comprise a rectangular cage 2.8-3 m wide, weighing aroung 600 kg, mounted upon two sledge runners. The cage is connected to a hose, which serves to eject water under pressure from the nozzles at the mouth of the dredge and inside the dredge cage. Surveys for C. gallina shall be carried out in the 13 marine compartments of the Adriatic Sea (GSA17 and GSA18, see Map 1), while surveys for E. minor were scheduled in 6 marine compartments (Roma, Gaeta, Napoli, Monfalcone, Venezia and Chioggia; GSA 17, GSA 9 and GSA 10, see Map 2). Each compartment shall be surveyed taking equidistant samples (0.25 nautical miles for C. gallina; every 2 m of depth for E. minor) until the resource is present, along transects perpendicular to the coast (separated by 2 nautical miles from each other.) At each sampling station, an area of around 300 m2 is surveyed (width of cage |

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| 3 m x 100 m of tow). At the end of the tow, the cage is hauled, and its content dropped into a collecting box. The catch of the striped clam is conveyed to a mechanical vibrating sieve, composed of a sieving plane (19 mm holes diameter), while the razor clams are sorted by hand. All striped venus clams retained by the sieve are weighed. For each sample, length frequency distribution of clams are studied. To study the fraction of juvenile clams, a net bag sampler with a small mesh is mounted inside the dredge. Size frequency distribution of this sample is also recorded.   1. For internationally coordinated surveys, describe the participating Member States/ vessels and the relevant international group in charge of planning the survey   NA   1. Where applicable, describe the international task-sharing (physical and/or financial) and the cost-sharing agreement used   NA   1. Explain where thresholds apply No threshold   (max. 450 words per survey) |
| 1. Graphical representation (map) showing the positions (locations) of the realized samples.   Member State shall provide maps presenting the spatial distribution of the main sampling types obtained during the survey.  See map above in point 2. Information on the coverage of the planned sample is given in table 1G. |
| 1. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.   Member State shall provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, Member State shall refer to any status report (e.g. Cruise report).  This is a national survey. A survey manual has been prepared and it is available in the Italian DCF web site ([http://dcf-italia.cnr.it](http://dcf-italia.cnr.it/)) .   1. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Member State shall specify in which context the results are used (on routine basis), both on an international as well as on a national context.   Concerning hydraulic dredges for striped venus clam (Chamelea gallina) three management plans have been adopted in Italy through the Ministerial Decree of 24/07/2015, the EC Regulation (EC) 2016/2376 (discard plan) and the Ministerial Decree of 17/06/2019. The surveys allowed to calculate key indicators (reference points, RPs) for the management of the resource. These RPs are listed in the “Piano di gestione nazionale per le attività di pesca con il sistema draghe idrauliche e rastrelli da natante” approved with Ministerial Decree of 17/06/2019. Important is the use by “Consorzi Gestione Molluschi” to define the daily fishing areas, the fishing quota, the closing periods and their duration.   1. Extended comments (Tables 1G and 1H)   In 2021, all DRES surveys to assess the stock of Venus clams in GSA 17 and 18 have been performed. Some problems occurred instead for the monitoring of razor clams in GSA 9 and 10. In these areas, it was not feasible to conduct the surveys for various reasons. The main problem was related to the difficulties in organizing the surveys due to the COVID pandemic, in addition to administrative reasons. The same apply for the surveys for razor clam and for smooth clams in GSA 17.  (max 450 words per survey) |

SECTION 2: FISHING ACTIVITY DATA

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

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| General comment: This box fulfills paragraph 4 of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraph (2) point (b) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. 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   The definition of all the fishing trips of the Italian fleet with their associated features is based on a cross- validation procedure of different sources of data. The procedure considers all available information at the most disaggregated level:  Fishing fleet register. The fishing technique actually used by each vessel is checked on a quarterly basis.  This activity includes: field surveys through the data collectors network used in sample surveys,  cross-checking with the information reported in logbooks, VMS data, comparison with previous fleet structures.  Logbooks and landing declarations. The Control Regulations data are consolidated monthly. Basic and regular checks are implemented on the gear used and on the species caught and landed. These declarative forms are the unique source of information for dredgers, tuna seiners and vessels operating  outside the Mediterranean.  Sales notes data. In addition to fundamental checks on the average price for the species at the highest level of geographical and technical detail, this source of information is also used to validate the data on the quantities landed by species.  VMS data. The information on the geo localization of the fishing boat are a well established reality and their use covers 95% of the fleet => 15 meters (1600 boats). In addition to providing information  about of the effort distribution, they are used as a control tool for the activity through crossing with the logbook declarations and the sample survey. They can also provide information on the gear used,  therefore on the metier.  Sample survey. It is the prevalent source of information for the fleet < 10 meters; sales notes data are also used to cross-checks sample data. The sample survey is also applied to the fleet > 10 m to integrate the information derived from the Control Regulation.  Data from biological sampling and observing trips. The data derived from biological samples allow to estimate the discards of the main commercial species and estimate the frequency distributions of landing and discards. Furthermore, they provide productivity parameters such as the CPUE that  can be used both as a check-control for the information coming from Regulation control and those derived from sampling survey.  Specific procedures are applied to verify the information obtained from the different sources, relating to a same variable (gears, days, catch and price for species), with the goal of identifying and validating the real figure and get an exhaustive picture of the fishery for scientific purposes.   1. Description of methodologies used to estimate the value of landings   The estimation of value of landings follows the same approach applied for the estimation of volume 37 of landings and of fishing effort. Methodologies are described under points 1 (Description of methodologies used to cross-validate the different sources of data) and point 4 (Description of methodologies used to plan collection of the complementary data).   1. Description of methodologies used to estimate the average price (it is recommended to use weighted averages, trip by trip)   For the units of the sampling survey, the price is derived from sales that can be done on different channels: the fish market (one or more), the wholesaler and the retailer. The latter case is common in units of artisanal fisheries. Ultimately, a same species in a same trip can have multiple different prices. For the data obtained |

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| from the logbook, the prices are derived as the crosscheck of the survey data for the same stratum or the same area and from sales notes. Further use of the sales notes is to cross-check the price obtained from the survey  4. Description of methodologies used to plan collection of the complementary data (sample plan methodology, type of data collected, frequency of collection etc)  The target population (universe) is made up of the set landings by the Italian fishing vessels. The sample set unit is the single vessel selected from the official list of the Vessel Register. The sampling is of a stratified nature in that the fishing vessels of the fleet are divided into homogenous groups based on suitable variables and independent samples are taken from each of these clusters. The optimum sample number per stratum is defined according to Bethel’s procedure. This algorithm allows to obtain for each stratum, the optimal sample size, according to the predetermined error level. The error level has been raised to 7%, while in previous years was 4%. However, no loss of quality will result because the increase in the level of error will be compensated by the integration with the control regulation data. The vessels are selected using PPS methodology (Probability Proportional to Size) and, to be more exact, using the algorithm of Hanurav-Vijayan. Following the random extraction of vessels to be studied, the list is submitted to the network of data collectors that are selected professionals in the world of fishing and who have working relationships with the trade associations. They can easily get in touch with the owners of the ships and are usually present on landing. Primary data are collected and transmitted by means of specific software that works via the web. The Horvitz- Thomson estimator is used to obtain an estimate of totals per stratum, while the Sen-Yates-Grundy formula is used to estimate the relative sampling error. The estimate phase is preceded by a set of control and correction procedures of sample data to guarantee results with a determined level of quality.  (max 900 words per Region) |
| 5. Deviations from Work Plan methodology used to cross-validate the different sources of data  According with the provisions of the Work Plan, a sample survey has been the prevalent source of information for the fleet < 10 meters. The sample survey is also applied to the fleet > 10 m to integrate the information derived from the Control Regulation. The process is developed in several steps aimed at integrating the different types of information. In particular, in the first step, data of the various sources are treated separately (“vertical level”):  logbook and landing declaration, LB; sample survey, IC; satellite control system, VMS.  The second step (“horizontal level”) consists in the integration of the various sources. Synthetically, the phases can be summarized in the following steps:   * separate treatment of the various data sources of the control regulation - LB, VMS and of the sample survey; * identification of 'missing data'; * estimation of the missing data with the help of the various sources.Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.  1. Deviations from Work Plan methodology used to estimate the value of landings.   No deviations..   1. Deviations from Work Plan methodology used to estimate the average price.   The price, average by species was obtained from the sample survey, after verification with the historical series, carried out in the vertical phase of the work.Actions to avoid deviations.   1. Deviations from Work Plan methodology used to plan collection of the complementary data |

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| List the deviations (if any) and explain the reasons for the deviations.  There are slight changes in the 2020 sample coverage from what was provided in Table 2A of the “Fishing activity variables data collection strategy” of the Work Plan. In general, as in previous years, the deviations are due to the need to expand the sample of smaller classes (<15 meters) that show a greater lack of information.  (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

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| General comment: This box fulfils paragraph 5 points (a) and (b) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraphs (1), (2) and  (5) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Tables 5(A) and 6 of the delegated decision on 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. |
| Supra region: Mediterranean and Black Sea  1. Description of methodologies used to choose the different sources of data  Data sources will depend on the different types of data collection that will be used to collect the variables listed in table 5A of the EUMAP (see paragraph 2). In particular, data sources will be the followings:   * The Fleet Register will be used for the number of fishing enterprises and for variables related to the fleet (number of vessels, mean LOA of vessels, vessel’s tonnage, etc.) * Fleet register and ad hoc questionnaires will be used for estimating consumption of fixed capital and value of physical capital * Accounts will be used for financial position * Official administrative records will be used for reporting operating subsidies and subsidies on investments * Ad hoc electronic questionnaires will be used to collect the rest of the variables listed in table 5A of EUMAP from the sample units of the survey described in paragraph 4.  1. Description of methodologies used to choose the different types of data collection   Different methodologies and data sources will be used to collect the variables listed in Table 5A of the EUMAP, as reported below:   * + A probability sample survey will be implemented to estimate the following variables: o Income (Income from leasing out quota, Other income)     - Labour costs (Personnel costs, Value of unpaid labour)     - Energy costs and energy consumption     - Repair and maintenance costs     - Other operating costs (Variable costs, Non variable costs, Lease/rental payments for quota or other fishing rights)     - Investments in tangible assets, net     - Employment (Engaged crew, Unpaid labour, Total hours per year) |

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| * Gross value of landings and production value per species (Value of landings per species, Average price per species) and fleet variables will be collected as explained under text box 2A and table 2A. * Subsidies and number of fishing enterprises will be collected through a census. * Financial position will be estimated through a non-probability sample survey. * Value of quota and other fishing rights will be derived from official declarations sent to the administration and interviews to fishermen to complete the information on actual price paid; * Value of physical capital and consumption of fixed capital will be estimated through an indirect survey based on PIM (Perpetual Inventory Method).  1. Description of methodologies used to choose sampling frame and allocation scheme   The population will be all active and inactive vessels registered in the Union Fishing Fleet Register as defined in Commission Regulation (EC) No 26/2004 on 31 December of the reporting year and vessels that do not appear on the Register at that date but have fished at least one day during the reporting year.  The fleet will be segmented into homogeneous groups of vessels as defined by table 5B of EUMAP, according to the prevalent fishing technique. A further segmentation of the fleet based on a geographical criterion (combinations of administrative region and FAO geographical sub-areas (GSA)) will be used in the sampling design to improve the representativeness of the sample. This level of stratification may generate very small strata that have to be clustered to ensure statistical confidentiality and in order to design a statistically sound sampling plan. Such a clustering scheme will be consistent with previous years and will be maintained constant over time.  The sample size and its allocation among strata, as reported in table 3A has been carried out by using the software MAUSS-R, Multivariate Allocation of Units in Sampling Surveys, developed by ISTAT (Italian National Institute of Statistics). MAUSS allows to minimize the sample size according to maximum accepted sampling errors of target estimates for each stratum. The selected parameters for the estimation of the sample size and its allocation have been: labour costs and energy costs. See table 5B for further references.   1. Description of methodologies used for estimation procedures   Primary data referred to year *n* will be collected in the year *n+1* through the sample survey and will be subjected to: a) a control process, b) correction of outliers and estimation of missing data, c) elaborations for the estimation of the final variables requested by table 5A of EUMAP.  The control process of primary data will consist of the following steps:   * identification of outliers on absolute values; * identification of outliers on mean values; * evaluation of the costs structure; * comparison with benchmark data.   The final set of primary data resulting from corrections and imputation of non-response will be raised to the population. The raising factors will be calculated through calibration estimators (Deville and Särndal, 1992) which is the most efficient approach to be used in case of multivariate auxiliary information in the sample |

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| estimate from finite population. The methodology is available on: [http://dcf-italia.cnr.it/main/docs/14.](http://dcf-italia.cnr.it/main/docs/14)  The value of capital and capital costs will be estimated according to the PIM, which is based on the specification of the composition of the active fleet by age and on the estimation of price per GT. The price per unit of capacity will be estimated having in mind the price for building new vessels (replacement values). PGECON recommendations on the use of PIM will be also followed.  The estimation of data on subsidies will be based on the official lists provided by national and regional administrations. These lists will be further processed to consider only payments that can be classified as operating subsidies and subsidies on investments. Each payment will be associated with one vessel. This link will allow to report subsidies in fleet segments.  The estimation of financial position will be based on accounts for vessels belonging to companies which are obliged to publish financial statements.  5. Description of methodologies used on data quality  Three main methodologies will be applied to get consistent results for socio-economic parameters:   * monitoring of data collectors through field visits: to train data collectors and to ascertain what kind of contacts data collectors has established with operators; * statistical control: identification of the main anomalies, outliers and missing data and analysis of consistency over time and with regards to “benchmark” parameters; * cross-checks with other data sources: activity data, VMS, balance sheet data   Finally, coefficient of variations (cv) will be calculated for the final estimates trough statistical procedures.  Methodologies used for statistical control of primary data and for the estimation procedures are available on: [http://dcf-italia.cnr.it/main/docs/14.](http://dcf-italia.cnr.it/main/docs/14)  Other regions   1. Description of methodologies used to choose the different sources of data   The Italian Fleet Register includes 9 vessels with a license to operate outside the Mediterranean waters. The activity of these vessels depends on fisheries agreements in place and may vary every year.  The data source for the collection of the economic data will be the Economic&Loss Reports and the Balance Sheets.   1. Description of methodologies used to choose the different types of data collection Economic data for the fleet operating in “other regions” will be collected through a census. 2. Description of methodologies used to choose sampling frame and allocation scheme   The accounts and balance sheets of all the vessels that will result from official information that have fished outside the Mediterranean Sea will be collected and analysed. |

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| For inactive vessels value of capital and consumption of fixed capital will be collected.  Economic data will be provided at the level of fleet segment. If the fleet segments will be composed by less than 2 vessels, economic data will be collected but not published for confidentiality reasons.   1. Description of methodologies used for estimation procedures The aim of the survey is to get exhaustive information for all vessels. 2. Description of methodologies used on data quality   The data source will be the Profit and Loss Accounts and Balance Sheets. However, operators will be also contacted to ensure a precise alignment between accounting data and variables listed in table 5A of the EUMAP.  Response rate will be provided for each variable of table 5B of EUMAP as an indicator to assess the quality of final estimates.  *(max 900 words per Region)* |
| 1. Deviations from Work Plan methodology for selection of data source No deviations 2. Deviations from Work Plan methodology to choose type of data collection No deviations 3. Deviations from Work Plan methodology regarding sampling frame and allocation scheme   The sample rates provided for in the Work Plan (Table 3A) were defined on the basis of the last fleet available at the date of preparation of the Plan. Even if the sample was defined trying to maintain the same sampling rates reported in the WP, the discrete nature of the phenomenon still produces small differences in percentage terms of sample coverage. More significant deviations may instead be due to structural changes in fishing activity, which in the reference year led to the inclusion in the sampling plan of the fleet segment PGP VL1824, a segment that was not included in the fleet used for the preparation of the Work Plan. The presence / absence of particular fleet segments depends on the activity carried out during the year. Since the fleet segment is defined on the basis of the prevailing gear (used for more than 50% of fishing days), vessels can be classified in different fleet segments from one year to another. As for the PGP VL1824, for which no sample rate was planned, a sample rate of 13% was estimated using the MAUSS-R software so to have coefficients of variation in line with the other fleet segments. This segment has been included in Table 3A.   1. Deviations from Work Plan methodology used for estimation procedures   No deviations   1. Quality assurance   10.1 Sound methodology  Data collection follows statistical methodologies, as indicated in table 5B. The sample methods are reported in the document available at the following web link: https://dcf-italia.cnr.it/web/#/links/linee-guida. PGECON recommendations, as well as methodologies and definition, as provided by the PGECON sub group on Statistical and Methodological Issues (SIM), have been also considered.  . |

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| * 1. Accuracy and reliability   Response rate and Achieved sample rate are provided in Table 3A.  Data were collected using a web based questionnaire developed to carry out the survey. The software is available on a web platform to facilitate the compilation of the survey by the data collectors (NICO). The quality control activity of the sample economic data consists of the following phases:   * + - Initial check for typing errors and outliers,     - statistical and consistency checks of the sample data, benchmark analysis,     - coherence analysis and filters on submitted data,     - reports sent to detectors with indication of anomalies and errors,     - checking the data entered using official data sources (deposited balance sheets, VMS and logbook data).   In addition, quality checks are, usually, carried out through interviews with sector operators, use of auxiliary information or subjective knowledge on the sector and statistical analysis of final estimates on the basis of the historical time series. The localization of outliers ("outliers") is based on the definition of acceptance intervals outside of which a statistical unit is considered anomalous and then subjected to control and, eventually, to correction.   * 1. Accessibility and Clarity   Are methodological documents publicly available? Yes Are data stored in databases? Yes  Where can methodological and other documentation be found?  Methodological documents and protocols are available in the national web site for the Data Collection Framework  Provide the web link, if documentation is publicly available [https://dcf-italia.cnr.it/web/#/links/linee-guida](https://dcf-italia.cnr.it/web/%23/links/linee-guida) OTHER REGIONS   1. Deviations from Work Plan methodology for selection of data source No deviations. 2. Deviations from Work Plan methodology to choose type of data collection No deviations. 3. Deviations from Work Plan methodology regarding sampling frame and allocation scheme No deviations 4. Deviations from Work Plan methodology used for estimation procedures No deviations 5. Quality assurance   10.1 Sound methodology  Economic data on revenues and costs associated with fishing activities have been estimated through the analysis of the official financial statements of companies that carry out fishing activities outside the Mediterranean. The estimated data have been settled on the basis of the catches reported in the logbooks.  During 2020, 6 vessels were active, of which 5 were operating in the CECAF area, using trawler nets and one purse seiner was active in the IOTC area. To estimate the economic data, the financial statements of all the active vessels were analyzed and reclassified on the basis of interviews with sector operators carried out in previous years and which made it possible to link the balance sheet items with the economic variables requests by EUMAP. Data referring to the only purse seiner in IOTC were collected but for reasons of confidentiality were not transmitted  10.2. Accuracy and reliability |

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| Response rate and Achieved sample rate are provided in Table 3A. The estimates have been checked and validated through: consistency with the results of the economic performance of the vessels and the related company balance sheets, analysis of the average parameters by vessel and type of fishing activity, the comparison of the 2020 average parameters with 2018 and 2019.  10.3. Accessibility and Clarity Indicate with Yes or No. Yes  Are methodological documents publicly available? Yes Are data stored in databases? Yes  Where can methodological and other documentation be found? Methodological documents and protocols are available in the national web site for the Data Collection Framework,  Provide the web link, if documentation is publicly available [https://dcf-italia.cnr.it/web/#/links/linee-guida](https://dcf-italia.cnr.it/web/%23/links/linee-guida) (max 1000 words) |

SECTION 3: ECONOMIC AND SOCIAL DATA

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

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| General comment: This box fulfills paragraph 5 point (b) and paragraph 6 point (b) of Chapter III of the Annex Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 and Article 4 paragraph (3) point (c) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Table 6 of the delegated decision on 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   Social variables as indicated in Table 6 of EUMAP have been subject to pilot studies and 2017 and have been collected for the first time in 2018. According to the EUMAP, social data will be collected again in 2021 (every three years starting from 2018).  The collection of social data will cover: the fishing sector, marine and freshwater aquaculture and processing industry.   1. Duration of pilot study   According to the EUMAP, social data will be collected again in 2021 (every three years starting from 2018).   1. Methodology and expected outcomes of pilot study   The methodology will be in line with the results of the pilot studies and will follow PGECON methodologies. The sampling plans for the social variables for the fleet sector is reported in table 3A and for the aquaculture sector in table 3B.  (max 900 words) |
| 4. Achievement of the original expected outcomes of pilot study and justification if this was not the case. Social data have been collected as reported in the Work Plan. No deviations. |

5. Incorporation of results from pilot study into regular sampling by the Member State. Social data have been collected as reported in the Work Plan. No deviations.

(max 900 words)

SECTION 3: ECONOMIC AND SOCIAL DATA

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

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| General comment: This box fulfills paragraph 6 points (a) and (b) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraphs (1) and (5) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Tables 6 and 7 of the delegated decision on 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 main data sources will be the annual financial statements of companies in the aquaculture sector that will enable the collection of the variables requested by table 7 of EUMAP. Economic data will be collected from the analysis of accounts and financial statements, but also through direct contacts with businesses to ensure perfect alignment between the accounting data and variables required by table 7 of EUMAP.   1. Description of methodologies used to choose the different types of data collection   All the economical parameters will be estimated through a “Probability Sample Survey” in which the sample will be randomly selected from the universe of aquaculture firms.   1. Description of methodologies used to choose sampling frame and allocation scheme   Economic data will be collected for the aquaculture sector as defined by EU Reg. 1380/13 and the population will be defined according to EUMAP (enterprises whose primary activity is defined according to the European classification of economic activities NACE (1) codes 03.21 and 03.22 and who operate for profit). The sample frame and the allocation scheme will be derived from the Eurostat survey implemented according to REG CE  n. 762/2008. The optimum sample number per stratum is defined according to Bethel’s procedure, that is a mathematical algorithm to achieve the optimum sample allocation in a multivariate sample survey. Information will be collected through the choice of a representative sample per single productive segment, with a random selection. Once selected the firm sample per productive segment it will also be possible to substitute a single firm if necessary. No social and economic data on aquaculture will be collected for species accounting for less than 10 % of the Italian aquaculture production by volume and value.   1. Description of methodologies used for estimation procedures   To obtain the estimates of the totals per stratum, the Horvitz-Thompson formula will be used, derived for the particular case of the simple random sampling without replacement. According to this particular estimator, the variance and the CV will be calculated to evaluate the precision level. Additional information is available on: <http://dcf-italia.cnr.it/main/docs/14>.   1. Description of methodologies used on data quality   Accuracy indicators will be calculated to provide information on the quality of the collected data, for each variable. In particular, information on data quality will be given in terms of target precision levels and coverage rates. The estimation of the variance for the calculation of the CV will be also provided. The phase of controlling and correcting data consists in identifying and treating errors present in the primary data, in the aim of guaranteeing final results with specified levels of quality. Additional information is available on: <http://dcf-italia.cnr.it/main/docs/14>. |

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| *(max 1000 words)* |
| 1. Deviations from Work Plan methodology for selection of data source No deviations 2. Deviations from Work Plan methodology to choose type of data collection No deviations 3. Deviations from Work Plan methodology regarding sampling frame and allocation scheme No deviations 4. Deviations from Work Plan methodology used for estimation procedures No deviations 5. Quality assurance   10.1 Sound methodology  The applied methodology is compliant with the one reported in the Work Plan and available on the Italian DCF web site.   * 1. Accuracy and reliability   Response rate and Achieved sample rate are provided in Table 3B.  The number of companies to be investigated was established by setting the admitted sample error limit or, equivalently, the coefficient of variation, in relation to the previous years. The greater the variability found and defined by the standard deviation, the greater the sample size necessary to obtain a predetermined level of variation. A first step of data control and correction consisted in identifying and treating errors in the primary data (data collection phase), with the aim of guaranteeing final results with specific levels of quality. With regard to the quality of the data, both the sampling error and the non-sampling error were checked. In view of this, the sample error can be reduced by defining a sample size that ensures the accuracy of the estimates. For this purpose, the sample size has been set by the Bethel criterion which is a generalization of the Neyman criterion in the presence of a stratified sample..   * 1. Accessibility and Clarity Indicate with Yes or No   Are methodological documents publicly available? Yes Are data stored in databases? Yes  Where can methodological and other documentation be found? National Website for DCF Provide the web link, if documentation is publicly available [http://dcf-italia.cnr.it.](http://dcf-italia.cnr.it/)  (max 1000 words) |

SECTION 3: ECONOMIC AND SOCIAL DATA

# Pilot Study 4: Environmental data on aquaculture

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| General comment: This box fulfills paragraph 6 point (c) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2 and Article 4 paragraph (3) point (d) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Table 8 of the delegated decision on 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   Environmental data as indicated in Table 8 of EUMAP have been subject to pilot studies and 2017 and have been collected for the first time in 2018.   1. Duration of pilot study   According to the EUMAP, environmental data will be collected again in 2020 (every two years starting from 2018).   1. Methodology and expected outcomes of pilot study   The methodology will be in line with the results of the pilot study.  (max 900 words) |
| 1. Achievement of the original expected outcomes of pilot study and justification if this was not the case. 2. Incorporation of results from pilot study into regular sampling by the Member State.   (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

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| General comment: This box fulfils footnote 6 of paragraph 1.1(d) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme; and Article 2, Article 4 paragraphs (1) and  (5) and Article 5 paragraph (2) of the Implementing Decision (EU) 2016/1701 on the format of the WP. It is intended to specify data to be collected under Table 10 of the delegated decision on 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   In Italy, the fish processing sector is part of the industry, manufacturing sector with NACE code 10.20 (fish processing activity). Economic data for all enterprises will be collected through the implementation of a specific survey. The main data sources for income and costs variables will be enterprises’ registers and the official balance sheets of these companies. Subsidies on investments will be collected by using the main administrative sources (e.g. funds allocated under EMFF).  In order to collect all the economic data on employment, enterprises’ registers will be cross-checked with other national data sources (e.g. labour registers and statistics) for providing the main economic data on employment (including the social data and economic data on FTE and labour time).  As far as the social data related to employment, after the first data collection in 2018 (data referring to 2017) data will be collected for the whole sector every three years (next time in 2021), as endorsed by PGECON.  The main data sources (e.g. labour registers, ad hoc questionnaires and official data on labour forces) will be cross-checked and used for providing the variable listed under Table 10 of EUMAP.  The main economic variables (e.g. turnover and number of enterprise) will be collected also for enterprises exerting the fish processing activity as secondary activity. The main data sources will be enterprises’ register for the number and balance sheets and interviews for turnover attributed to fish processing activity. Data will be provided by size classes ensuring, where emerging, confidentiality.  Collection of data on raw material in weight, by species and origin, for the whole sector were collected through a pilot study in 2018 and will be collected again in 2021 (every three years starting in 2018). Meetings with the industry representatives will help to select industries and collect data.   1. Description of methodologies used to choose the different types of data collection   Economic data for the overall population, main and non-main, will be collected by mean of an ad-hoc survey, trying to ensure a coverage rate in line with previous years. The survey will be based on a non-probability sample (for both the main and non-main segments of the industry), using primary data (balance sheets) of enterprises for which they are publicly available (ensuring, as in the past, an average coverage rate of around 40% and more).  Social data will be produced by cross-checking data from a non-probability sample survey and official data on labour forces (i.e. Istat sources).  Data on raw material will be collected by mean of questionnaires and interviews submitted to selected industries (according to the representativeness) and in line with methodologies suggested by PGECON.   1. Description of methodologies used to choose sampling frame and allocation scheme   For the data collection conducted by mean of ad-hoc surveys the sampling frames will be defined according to the surveys already implemented under previous work plans.   1. Description of methodologies used for estimation procedures |

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| In case of economic data gained through sample, standard statistic parameters will be applied to raise the values to the overall population.  5. Description of methodologies used on data quality  The quality of data collected by mean of ad-hoc survey will be ensured by applying sound statistical approaches and providing data on coverage rates and coefficient of variation.  Quality will be assessed by response rate and the sampling errors will be expressed by the main quality and accuracy indicators (e.g. standard error and/or coefficient of variation).  (max 1000 words) |
| 1. Deviations from Work Plan methodology for selection of data source No deviations 2. Deviations from Work Plan methodology to choose type of data collection   Because of reluctance by industry in releasing data (as emerging from the 2018 pilot study), data on raw material have been produced not by mean of estimation starting from Eurostat/Prodcom data, following the approach applied in some Secfish project case-studies.   1. Deviations from Work Plan methodology regarding sampling frame and allocation scheme No deviations 2. Deviations from Work Plan methodology used for estimation procedures No deviations 3. Quality assurance   10.1 Sound methodology  The sampling methodology is based on a non-random sample, as the selection of the sample companies is based only on those publishing balance sheets (frame population), meaning that only joint stock companies, obliged to publish the financial statements, are eligible to be sampled. Primary data used in the sample survey for the estimation of economic of the fish processing industry are collected by consultation of financial statements. The production of final estimates is made through raising the primary data to the whole population applying statistical expansion factors. The methodology used to estimate the economic parameters is reported in the methodological report available at: [https://dcf-italia.cnr.it/web/#/links/linee-guida](https://dcf-italia.cnr.it/web/%23/links/linee-guida)  10.2. Accuracy and reliability  Response rate and Achieved sample rate are provided in Table 3C.  In 2021, accuracy indicators for the 2019 annual data were calculated. For each variable and for the total population, the following accuracy indicators have been calculated: Achieved sample rate, Sampling strategy, Precision level. The calculation of these indicators followed the indications of the manual on the quality guidelines of the DFC (Moura, 2016) and the guidelines published on the Data collection website:  <https://datacollection.jrc.ec.europa.eu/wordef/accuracy-indicators>  According to the data release protocols to DG-MARE, the CV calculated for each variable has been converted into the "precision level", according to the guidelines on the website of the European Data Collection <https://datacollection.jrc.ec.europa.eu/>.  10.3. Accessibility and Clarity |

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| Are methodological documents publicly available? Yes  Are data stored in databases? Yes  Where can methodological and other documentation be found?  In the Italian DCF web site: [https://dcf-italia.cnr.it/web/#/links/linee-guida](https://dcf-italia.cnr.it/web/%23/links/linee-guida)  (max 1000 words) |

SECTION 4: SAMPLING STRATEGY FOR BIOLOGICAL DATA FROM COMMERCIAL FISHERIES

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

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| General comment: This box fulfills Article 3, Article 4 paragraph (4) and Article 8 of the Implementing Decision (EU) 2016/1701 on the format of the WP and forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme. This Table refers to data to be collected under Tables 1(A), 1(B) and 1(C) of the delegated decision on 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 Implementing Decision (EU) 2016/1701 on the format of the WP.  REGION: Mediterranean Sea and Black Sea  In order to ensure congruency along the data series, Italy reported data by metiers as recommended by RCMMed&BS-LP 2016, and as defined by EU Decision 1251/2016 under Chapter III (data requirements), paragraph 2(a) requesting catch data at the aggregation level 6 (corresponding to mesh size). The reference list of metiers is being reproduced in RCM MED&BS LP 2016 report for ease of reference. With the exception of the metier targeting large pelagic and eel, all the collection and analysis of data will be performed and reported at GSA level [(http://www.fao.org/gfcm/data/map-geographical-subareas/en/).](http://www.fao.org/gfcm/data/map-geographical-subareas/en/)) Sampling will be performed in order to evaluate the quarterly length distribution of species in the catches, and the quarterly volume of discards. Discards evaluation will be carried out only for the selected metier as agreed both during the RCMMed&BS-LP 2016 (see Annex IX of the mentioned report), and during the RCGMed&BS, 2019..  Tables 1A, 1B and 1C  RCMMed&BS-LP 2016 agreed that stratification of stocks for data collection should follow the structure followed in the previous years (Group 1, 2 and 3 species, EU Decision 93/2010), which is also in line with the approach, and the spatial stratification, as identified in the adopted GFCM Data Collection Reference Framework (DCRF manual v. 19.1 - GFCM, 2018).  Table 1A - In the current column namely ‘Area/Stock’ it is present the FAO division as in the Table 1A of the COM Delegated Decision, 2019/910. However in the Med&BS, stock assessment and fisheries management are carried out based on GFCM Geographical Sub-Areas (GSA) and not ad FAO division level. So, as agreed at Regional level (see RCMMed&BS-LP, 2016 Annex X), all the Med&BS countries in the ‘Comments’ column should report the relevant GSA/s in which the stock/species really occurred and for which biological sampling will be carried out. The identified GSA/s where the biological sampling will be carried out it has been correctly reported in Table 1B and 1C. Average landing data and share in EU landing have been obtained from the data sharing during the RCGMed&BS, 2019 meeting (Malta, September 2019).  Table 1B - Length data should be collected and reported yearly for all the three identified group of species. Other biological parameters (i.e. sex, age, maturity, weight) shall be collected and reported yearly for Group 1 species (GFCM-DCRF Appendix A.1), whereas, for all Group 2 species, sex, age, maturity and weight, should be reported every three years (as requested by GFCM-DCRF Appendix A.2).  Furthermore, as agreed during RCGMed&BS, if a species it is presents in Groups 1, 2 and 3 of the GFCM- DCRF (GFCM, 2018) and it is absent from the tables of the EUMAP this species has been included in the sampling plan.  Table 1C – RCM Med&BS-LP 2016 agreed that the number of demersal and small pelagic individuals to be sampled should be decided by the MS based on previous sampling knowledge. Starting from 2021, the optimum number of individuals required for biological data sampling will be revised and calculated using the |

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| tool devised by the project STREAM and presented during the last Regional Coordination Group (RCGMed&BS, 2019).  Concerning large pelagic species, length data should be reported yearly. Sex, age, maturity and weight should  be reported in accordance with the end-user needs and coordinated at regional level (Table 1B). With regard to the number of individuals to be sampled for large pelagic (Table 1C), the RCG-LP is currently working on devising an appropriate tool to calculate the optimum number of individuals to be sampled. As this tool is not available yet, the same number of individuals, as regionally agreed by each country for the previous triennial period, is to be retained (see updated table in the RCM MED&BS-LP 2016 report).  Regarding sharks, it should be underlined that most of the proposed species reported both in Tables 1C and 1D of the EUMAP (COM Delegated Decision, 2019/910), and in the Appendix A.3 of the GFCM-DCRF (GFCM, 2018), are rare and with a sporadic and not confirmed presence in the Mediterranean area. For this reason, during the RCMMed&BS, it has been decided that no planned minimum number and sampling strategy should be associated to the collection of “sharks” species. Following the above mentioned issues all the elasmobranch species (with the exceptions of the 4 species reported further down) have not been listed in the tables 1B and 1C of the working plan, because for those species it will not be possible to draw a sampling plan. However, all elasmobranchs species, whenever they occur during the biological sampling, will be sampled concurrently for length and then reported in the Annual Report. Biological information, such as sex, age, weight and maturity, will be also collected and reported when available, through the research surveys at sea.  As mentioned before, in the Italian WP, only for the four most abundant elasmobranchs species, Raja clavata (GSA 9, 11 and 16), R. asterias (GSA 9 and 11), R. miraletus (GSA 18) as commercial species, and Galeus melastomus as bycatch species (GSA 9, 10 and 11), there will be a biological sampling programme associated (see Tables 1B and 1C).  Tables 4A, 4B and 4C  In order to identify the metiers to be sampled, the ranking system at GSA level, as described in the GFCM- DCRF (2018), has been applied. For sampling purpose, only the major metier will be considered. Official statistics (landings, effort and value data) have been used to apply the ranking system. Sampling strategies in each GSA will be a mix of concurrency-at-sea (sampling directly on board by observers and scientists) and concurrency-at-landing site (sampling directly on landing site, at market etc.). The target population for the reference year will be the number of fishing trips by metier of the previous years. Fishing trip should be considered equal to fishing day. The frame population is a subsample of the target population: it will be a selection of fishing trips, mainly on spatial (GSA) and time stratification basis (quarterly) with measurements of the composition of the catch in order to detect seasonal differences in the demographic structure and composition of the landings for different metier. The sampling will be accomplished according to the methods of a two-stage stratified random sampling: the sampling unit belonging to the metier will be the  fishing trip. The number of fishing days to be sampled has been defined proportionally to the effort (number of days at sea for each metier) and the landings.  AS regards discards sampling, Italy will follow the discard sampling program as recommended by by the Regional Coordination Group (see Annex IX of the RCMMed&BS-LP 2016, and the updated table in the last RCGMed&BS, 2019).  Finally, concerning the establishment of a recovery plan on Mediterranean swordfish, the workplan already includes the collection of adequate scientific information for highly migratory pelagic species in the  Mediterranean. The recovery plan on Mediterranean swordfish requests the collection of additional specific information related to fishing activities and specific data on the catches, in the smallest time-area possible.  The sampling schemes already planned will be adapted in order to reach the level of details requested by the recovery plan on Mediterranean swordfish.  A summary of the methodologies applied for the estimation of demography of landings, discards, the calculation of growth and reproduction parameters, and the related precision levels, it is provided under the following link <http://dcf-italia.cnr.it/reserved/lineeguida/1>. |

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| REGION: Other regions  The Italian Fleet Register includes 8 vessels with a license to operate outside the Mediterranean waters. The activity of these vessels depends on fisheries agreements in place and may vary every year. Till now there has been no requirement for Italy to sample these two fisheries, as recommended in RCG LD reports. Available landing and effort data of these vessels operating both in the CECAF and IOTC areas will be sent to the RCM Long Distance Fishery. Up to now, no biological sampling has been implemented for those vessels, they only have a national obligation to fulfil logbooks. Italy will be considered further recommendations of the RCM long distance fisheries.  *(max 900 words per region)* |
| Deviation from the sampling plan according to Article 5 paragraph (3) of the Implementing Decision (EU) 2016/1701:   1. Deviations from the Work Plan   The 2021 activities were impacted by COVID-19 pandemic, thus it was not possible for scientific observers to embark onboard fishing vessels. For this reason the observations onboard were carried out, where possible, using a self-sampling approach, based on the fishermen collaboration to collecting information on discards. The consequences of the COVID-19 outbreak thus affected the sampling occasions related to the concurrent sampling at sea, as the vessels more available to collaborate could be selected. However, samplings for the biological variables have been performed to evaluate the quarterly length distribution of species in the catches, and the quarterly volume of discards. Data have been collected by métier referred to level 6 of the matrix defined in Appendix IV of the DCF and agreed at Regional Level. The commercial fraction was sampled as usual almost in all the GSAs. Fluctuations in % of achievement of planned PSU may occur in some métier due to difficulties in finding vessels using the specific gear, seasonal fishing activity and thereinafter bad meteo-marine conditions. Overall, all the identified métier has been sampled adequately in nearly all the GSAs.   1. Action to avoid deviations   It is expected that regional activities and implementation of the results of the STREAM project and of the ongoing project MARE/2020/08 (SI2.705484) - Strengthening regional cooperation in the area of fisheries data collection in the Med & BS-Streamline will improve the sampling plan for biological data.  (max. 1000 words per region OR fishing ground) |

SECTION 5: DATA QUALITY

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

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| General comment: This box is applicable to the Annual Report. This box fulfills Article 5 paragraph (2) point  (a) of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is intended to specify data to be collected under Tables 1(A), 1(B) and 1(C) of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme. Use this box to provide additional information on Table 5A of the Annual Report. |
| A) MEDITERRANEAN SEA - SAMPLING SCHEMES FOR DEMERSAL AND SMALL PELAGICS |

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| 1. Evidence of data quality assurance   Information on the QAF for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. The collection and analysis of the data were carried out in accordance with the "Guidelines for data collection biological on the state of fishing resources "(<http://dcf-italia.cnr.it/>).  The technical and biological data collected during the sampling activities of the commercial catches and the discards was archived and validated using different data entry and processing programs.  In general. the methodology used to guarantee the quality of the data collected and stored in the database follows the philosophy used by the functions implemented in the R COST package (Jansen & al., 2009), developed within the project funded by the European Commission. COST includes functions that allow to import data in SDEF format (Standard Data Exchange Format), a format also defined during the aforementioned project and subsequently adopted as a standard by different data management and analysis systems (e.g. Deliverable.4.2 - Tools for data in compliance sizes in MARE/2014/19 Med & BS) to solve problems related to the conformity of data sets with specific codes (controlled vocabularies, lists of permitted values, range of numerical values, etc.). According to the results of the European project MARE/2016/22 STREAM “Strengthening Regional cooperation in the area of fisheries biological data collection in the Mediterranean and Black Sea”, improvements in sampling procedures will be introduced through the production of optimized sampling scenarios that can be included in the future Work Plans. However, these implementations could not be applied in the current year given the limitation in the activities caused by the COVID\_19 outbreak.   1. Sampling design   Information on the sampling design for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. The sampling plan is based on a complementary concurrency- at-sea strategy (direct sampling by on board observers) and concurrency-at-landing site (sampling at the landing sites). Unfortunately the implementation of the forms this year was problematic given the COVID\_19 pandemic. It must be considered, in addition, that many vessels, especially those of small-scale fishing, do not have the requisites and safety equipment necessary for the boarding of additional personnel compared to the normal crew. In these cases, the sampling method was performed at the landing. The frame is a sub sample of the target population that is a selection of fishing trips with temporal stratification in quarters, to grasp seasonal differences in the demographic structure of commercial capture (landing and discard).   1. Sampling implementation   Information on the sampling design for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. In each observed fishing day, for each of the sampled vessel, the weight of the total commercial catch, distinct by species and commercial categories, was recorded, and the weight of the discard by species (when foreseen) was recorded too. A sample of known weight per category was taken to allow the raising procedure of length and age composition of the sample to catches landed and discarded. The sample sizes for the various listed biological variables (individual information by length, age, individual weight, sex, maturity) are given in the Excel table "1C: Sampling intensity for biological variables".   1. Data capture   As far as possible, data collection took place according to the provisions of the Work Plan. In the future, the actions will be aimed at ensuring time coverage (quarters) as consistent as possible with the sampling strategy. Moreover, as far as possible, under and over-sampling will be mitigated, in particular for the biological variables related to maturity, sex and individual weight, while respecting the objectives of representativeness of the size structures and the biological parameters.  Finally, for the future, the tools made available by the following projects will be considered and applied: MARE/2016/19 (SI2.705484) - Strengthening regional cooperation in the area of fisheries data collection in the Med & BS and MARE/2016/22 "STrengthening REgional cooperation in the area of fisheries biological data collection in the Mediterranean and Black Sea, STREAM (SI2.770115)”. The use of these tools may help to better focus and direct the sampling effort for the different biological variables, as well as to outline an ad hoc sampling approach to be included in future WorkPlan.   1. Data Storage |

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| Data on biological sampling (primary data, métier-related variables, stock-related variables) are uploaded to the National DCF DataBase. This database has been recently upgraded but is still currently in a review process to align its functionality with the new EUMAP. It is also expected that in the future a contribution to this aspect will be given by the project MED&BS RDB-Fisheries Information System Grant Agreement Number MARE/2020/08 -(512.839444).  6. Data processing  Information on data processing for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided.  B) MEDITERRANEAN SEA - SAMPLING SCHEMES FOR LARGE PELAGICS  *Evidence of data quality assurance*  Information on the QAF for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. Quality indicators, and any related problems, for stock related variables of large pelagic species are calculated yearly at regional level (RCGLP). Regional group is continuing the exercise for calculating the quality indicators figures for stock related variables for large pelagic, trying to standardize and optimize the methodology at Regional Level. For the future, the tools made available by the following project will be used: MARE/2016/22 "Strengthening regional cooperation in the area of fisheries data collection", Annex 3 - Biological data collection for fisheries on highly migratory species, Biological data collection for fisheries on highly migratory species (RECOLAPE).  *Sampling design*  Information on the sampling design for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. The sampling plan is based on a complementary concurrency- at-sea strategy (direct sampling by onboard observers) and concurrency-at-landing site (sampling at the landing sites).  *Sampling implementation*  Information on the sampling design for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. Data were collected through interviews at the landing sites and direct observations on board, with at least one sample port for each GSA, identified on the basis of its importance for the fishing of the large pelagics. The samples are temporarily allocated according to the fishing season and the application of the international rules that regulate the fishing activities of some of the target species (bluefin tuna, swordfish and lampuga mainly) that clearly affect the activity. In order to guarantee the quality of the data collected with respect to the parameters established at international level and in order in order to make such data comparable with those of the other countries, the statistical data collection manual provided by the ICCAT was used (ICCAT. 2006-2016, ICCAT Manual International Commission for the Conservation of Atlantic Tuna In: ICCAT  Publications [on-line] Updated 2016. [http://www.iccat.int/en/ICCATManual.asp,](http://www.iccat.int/en/ICCATManual.asp) ISBN (Electronic Edition): 978-92 -990055-0-7).  The sample sizes for the various biological variables (individual information by length, age, individual weight, gender, maturity) are given in table "1C: Sampling intensity for biological variables".  *Data capture*  Data collection took place according to the provisions of the Work Plan. However, it should be noted that the collection of the data for the large pelagic species is complicated both by the lack of presence of some of these species and by the numerous regulatory limitations established at Community level.  *Data Storage*  Data on biological sampling (primary data, métier-related variables, stock-related variables) are uploaded to the National DCF DataBase. This database is currently in a review process to align its functionality with the new EUMAP.  *Data processing*  Information on data processing for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. |

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| 1. MEDITERRANEAN SEA - SAMPLING SCHEMES FOR EEL   *Evidence of data quality assurance*  Information on the QAF for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. During 2021, activities were implemented as planned within the WP. All methodological activities for monitoring the catches, for data expansion, for the evaluation of the parameters of effort and for biological sampling, including the methods of treatment of the samples, have been conducted by referring to the provisions of the 2017-2019 Work Plan, in turn drafted by doing reference to the coordination work conducted within the EIFAAC / ICES / GFCM Working Group on Eel in the course in the last few years (2015-2018) and in the specific Workshops organized by the WGEEL, also in accordance with the provisions of Regulation 1100/2007 and by the National and Regional Management Plans Italy. In particular, reference is made to Working Group WKEELDATA 2017 and  WKTEEL 2018.  *Sampling design*  Information on the sampling design for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided.  *Sampling implementation*  Information on the sampling design for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided. The sample sizes for the biological variables (individual information by length, age, individual weight, gender, maturity) are given in table "1C: Sampling intensity for biological variables". Some critical issues for the activities concerning the species *Anguilla anguilla*, are linked to the need to provide the catches in the individual EMUs in order to set the biological sampling, to the particularity of the biological cycle of the species, to its fragmented distribution on the territory, to its seasonal articulation and to the extremely heterogeneous types of exploitation. Furthermore, attention is paid to the need for coordination between different modules of the WP for the collection of EEL commercial and recreational fishing data, and activities related to actions currently underway at European level (specific monitoring, stock assessment, preparation of Progress Reports etc.), which derive from the application of EC Regulation 1100/2007 and which impose a series of specific actions for this species at both European and national levels. For the first time, the Fisheries Offices of the administrative regions (EMU involved in the Anguilla Regional Plans) have been directly involved to carry out the survey. The operational protocol for the surveys was shared with the regional offices (questionnaires, interview methodology, data archiving system) and the interviews were conducted with their collaboration as far as possible. Where there have been difficulties in meeting the fishermen, telephone interviews were conducted.  *Data capture*  Data collection took place according to the provisions of the Work Plan.  *Data Storage*  Data on biological sampling (primary data, métier-related variables, stock-related variables) are uploaded to the National DCF DataBase. This database is currently in a review process to align its functionality with the new EUMAP.  *Data processing*  Information on data processing for the biological sampling is reported in table 5A, where the web links to the reference documents are also provided.   1. OTHER REGIONS – ALL SPECIES   No activities for biological sampling were implemented in 2020.  (max. 900 words per Region/RFMO/RFO/IO OR sampling scheme) |

SECTION 5: DATA QUALITY

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

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| General comment: This box fulfills Article 5 paragraph (2) point (b) of the Implementing Decision (EU) 2016/1701 on the format of the WP. This box is intended to specify data to be collected under Tables 5(A), 6 and 7 of the Annex of the Delegated Decision (EU) 2019/910 on the multiannual Union programme. Use this box to provide additional information on Table 5B of the Annual Report. |
| A) Socio-economic data for the fishing fleet- all data collection schemes  *Evidence of data quality assurance*  The quality indicators of the estimates relating to 2020 and classified by type of variable, supra-region, fishing technique and length class, are based on the calculation of three indicators: the achieved sampling rate, the percentage response rate and the coefficient of variation (CV). All the quality indicators have been calculated within the database of aggregated data for each stratum of the fleet and for each variable being surveyed.  The calculation of the coefficient of variation for the variables of the sample survey is based on the algorithm programmed in R environment, in which the CV is estimated on the basis of the weights and probability of inclusion of the first order (or probability of inclusion in the sample) and second order (simultaneous presence of i and j units in the sample), using the algorithm of Hanurav-Vijayan, which defines a series of steps to carry out the extraction of a pre-set sample number (n), without replacement, and with probability of inclusion in the sample for the single non-uniform units, with respect to sampling with variable probability (CPV) or PPS (Probability proportional to size) or πPS (inclusion probability proportional to size).  Section P3 Impartiality and objectiveness Not relevant, (Yes in table 5B). Section P4 Confidentiality  Not relevant, (Yes in table 5B). Section P5 Sound methodology  Not relevant, (Yes in table 5B). Information on this principle is explained in Text boxes 3A. Section P6 Appropriate statistical procedures  Not relevant, (Yes in table 5B). The documented statistical procedures are available at: [https://dcf-italia.cnr.it/web/#/links/linee-guida](https://dcf-italia.cnr.it/web/%23/links/linee-guida) and they are not confidential.  Section P7 Non-excessive burden on respondents Not relevant, (Yes in table 5B). Section P8 Cost effectiveness Not relevant, (Yes in table 5B).66  Section P9 Relevance  Not relevant, (Yes in table 5B). Section P10 Accuracy and reliability  Not relevant, (Yes in table 5B). Description of methodologies used on data quality are reported in Text Box 3A.  Section P11 Timeliness and punctuality Not relevant, (Yes in table 5B) Section P12 coherence and comparability Not relevant, (Yes in table 5B) Section P13 Accessibility and Clarity  Are methodological documents publicly available? Yes. Are data stored in databases? Yes.  Where can methodological and other documentation be found? National web site for the Data Collection Framework  Provide the web link, if documentation is publicly available: <http://dcfitalia.cnr.it/reserved/lineeguida/1> |

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| 1. *Socio-economic data for the aquaculture sector Evidence of data quality assurance*   The methodology used for the calculation of quality indicators follows the definitions reported in the manual "Quality guidelines for the DCF" (Moura, 2016).  Section P3 Impartiality and objectiveness Not relevant, (Yes in table 5B). Section P4 Confidentiality  Not relevant, (Yes in table 5B). Section P5 Sound methodology  Not relevant, (Yes in table 5B). Information on this principle is explained in Text boxes 3B. Section P6 Appropriate statistical procedures  Not relevant, (Yes in table 5B). The documented statistical procedures are available at: [http://dcf-](http://dcf-/) italia.cnr.it/reserved/lineeguida/1 and they are not confidential.  Section P7 Non-excessive burden on respondents Not relevant, (Yes in table 5B). Section P8 Cost effectiveness Not relevant, (Yes in table 5B).  Section P9 Relevance  Not relevant, (Yes in table 5B). Section P10 Accuracy and reliability  Not relevant, (Yes in table 5B). Description of methodologies used on data quality are reported in Text Box 3B.  Section P11 Timeliness and punctuality Not relevant, (Yes in table 5B) Section P12 coherence and comparability Not relevant, (Yes in table 5B) Section P13 Accessibility and Clarity  Are methodological documents publicly available? Yes. Are data stored in databases? Yes.  Where can methodological and other documentation be found? National web site for the Data Collection Framework  Provide the web link, if documentation is publicly available: <http://dcfitalia.cnr.it/reserved/lineeguida/1>   1. *Socio-economic data for the processing sector Evidence of data quality assurance*   The sample survey for the processing industry falls into the category of non-probability sample surveys (NSS), since the probability of inclusion of the units detected, i.e. the enterprises for which the balance sheet is publicly available, is unknown. As a result, the selected sample cannot strictly be regarded as a random one since not all the enterprises of the frame population are obliged to publish the balance sheet and therefore not all of them have the same opportunity to be selected within the sample. To overcome this problem, in the estimation of quality indicators, it is suggested by the Commission Implementing Decision (EU) 2018/1283 of 24 August 2018 to assume that sampling units of non-census strata are randomly selected. By this approach, the calculation of the quality indicators follows the same approach used in the case of SRS. The quality indicators of the estimates relating to 2019 are based on the calculation of three indicators: the achieved sampling rate, the percentage response rate and the coefficient of variation (CV). All the quality indicators have been calculated within the database of aggregated data for each stratum (size class and NUTS2). According to the Fish processing data call release protocols, the CV calculated for each variable has been converted into precision levels (https://datacollection.jrc.ec.europa.eu/dc/proind/eum/templates). The level of precision depends on the value of the coefficient of variation (CV) where the maximum level 4 refers to an |

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| exhaustive and complete data collection, level 3 to a coefficient of variation equal to or less than 2.5%, level 2 refers to a maximum CV of 12.5%, level 1 to a maximum CV of 20% and level 0 to a CV above 20%.  Section P3 Impartiality and objectiveness Not relevant, (Yes in table 5B). Section P4 Confidentiality  Not relevant, (Yes in table 5B). Section P5 Sound methodology  Not relevant, (Yes in table 5B). Information on this principle is explained in Text boxes 3A. Section P6 Appropriate statistical procedure  Not relevant, (Yes in table 5B). The documented statistical procedures are available at: <http://dcf-italia.cnr.it/reserved/lineeguida/1> and they are not confidential.  Section P7 Non-excessive burden on respondents Not relevant, (Yes in table 5B).  Section P8 Cost effectiveness Not relevant, (Yes in table 5B). Section P9 Relevance  Not relevant, (Yes in table 5B). Section P10 Accuracy and reliability  Not relevant, (Yes in table 5B). Description of methodologies used on data quality are reported in Text Box 3A.  Section P11 Timeliness and punctuality Not relevant, (Yes in table 5B)  Section P12 coherence and comparability Not relevant, (Yes in table 5B) Section P13 Accessibility and Clarity.  Are methodological documents publicly available? Yes. Are data stored in databases? Yes.  Where can methodological and other documentation be found? National web site for the Data Collection Framework.  Provide the web link, if documentation is publicly available: <http://dcfitalia.cnr.it/reserved/lineeguida/1>  (max. 900 words per Region/RFMO/RFO/IO/NSB OR sector) |