

National Coordination: Direcção-Geral dos Recursos Naturais, Segurança e Serviços Marítimos/Directorate General for Natural Resources, Safety and Maritime Services (DGRM).

Participating Entities: Direcção-Geral dos Recursos Naturais, Segurança e Serviços Marítimos/Directorate General for Natural Resources, Safety and Maritime Services (DGRM); Instituto Português do Mar e da Atmosfera / Portuguese Institute for Sea and Atmosphere (IPMA); Direcção Regional das Pescas da Região Autónoma dos Açores/Regional Directorate for Fisheries in Azores (DRP/RAA); Direcção Regional do Mar da Região Autónoma da Madeira/ Regional Directorate for the Sea in Madeira (DRM/RAM).

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

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

Commission Delegated Decision (EU) 2021/1167 of 27 April 2021

establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors from 2022

Commission Implementing Decision (EU) 2021/1168 of 27 April 2021

establishing the list of mandatory research surveys at sea and thresholds as part of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors from 2022

Commission Implementing Decision (EU) 2022/39 of 12 January 2022

laying down rules on the format and timetables for the submission of national work plans and annual reports for data collection in the fisheries and aquaculture sectors, and repealing Implementing Decisions (EU) 2016/1701 and (EU) 2018/1283

Portugal Annual Report on data collection in the fisheries and aquaculture sectors

2022

Version 1.2

Lisbon, 31st May 2023

(Revision 21nd June 2023)

SECTION 1: GENERAL INFORMATION	6
DATA COLLECTION FRAMEWORK AT NATIONAL LEVEL	6
TEXT BOX 1A: TEST STUDIES DESCRIPTION	7
TEXT BOX 1B: OTHER DATA COLLECTION ACTIVITIES.....	8
SECTION 2: BIOLOGICAL DATA	12
TEXT BOX 2.1: LIST OF REQUIRED SPECIES/STOCKS.....	12
<i>Region “North-East Atlantic” / RFMO/RFO/IO “ICES”</i>	<i>12</i>
<i>Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”</i>	<i>15</i>
<i>Region “Other regions” / RFMO/RFO/IO “NAFO”</i>	<i>16</i>
<i>Region “Other regions” / RFMO/RFO/IO “IOTC”</i>	<i>16</i>
<i>Region “Other regions” / RFMO/RFO/IO “ICCAT”</i>	<i>17</i>
<i>Region “Other regions” / RFMO/RFO/IO “CECAF”</i>	<i>20</i>
<i>Region “Outermost regions” / RFMO/RFO/IO “NA”</i>	<i>21</i>
TEXT BOX 2.2: PLANNING OF SAMPLING FOR BIOLOGICAL VARIABLES	22
<i>Region “North-East Atlantic” / RFMO/RFO/IO “ICES”</i>	<i>22</i>
<i>Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”</i>	<i>27</i>
<i>Region “Other regions” / RFMO/RFO/IO “NAFO”</i>	<i>27</i>
<i>Region “Other regions” / RFMO/RFO/IO “IOTC”</i>	<i>28</i>
<i>Region “Other regions” / RFMO/RFO/IO “ICCAT”</i>	<i>29</i>
<i>Region “Other regions” / RFMO/RFO/IO “CECAF”</i>	<i>32</i>
<i>Region “Outermost regions” / RFMO/RFO/IO “NA”</i>	<i>33</i>
TEXT BOX 2.3: DIADROMOUS SPECIES DATA COLLECTION IN FRESHWATER.....	35
TEXT BOX 2.4: RECREATIONAL FISHERIES.....	38
<i>Region “North-East Atlantic”</i>	<i>38</i>
<i>Region “Other Regions”</i>	<i>40</i>
TEXT BOX 2.5: SAMPLING PLAN DESCRIPTION FOR BIOLOGICAL DATA	41
<i>Region “North-East Atlantic” / RFMO/RFO/IO “ICES”</i>	<i>41</i>
<i>Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”</i>	<i>45</i>
<i>Region “Other regions” / RFMO/RFO/IO “NAFO”</i>	<i>47</i>
<i>Region “Other regions” / RFMO/RFO/IO “IOTC”</i>	<i>48</i>
<i>Region “Other regions” / RFMO/RFO/IO “ICCAT”</i>	<i>49</i>
<i>Region “Other regions” / RFMO/RFO/IO “CECAF”</i>	<i>51</i>
<i>Region “Outermost regions” / RFMO/RFO/IO “NA”</i>	<i>53</i>
TEXT BOX 2.6: RESEARCH SURVEYS AT SEA	55
<i>International Mackerel and Horse Mackerel Egg Survey (triennial) (MEGS).....</i>	<i>55</i>
<i>Sardine DEPM (triennial) (SDEPM).....</i>	<i>59</i>
<i>Sardine, Anchovy, Horse Mackerel Acoustic Survey – SAHMAS (PELAGO survey carried out by Portugal)</i> Erro! Marcador não definido.	
<i>Nephrops Survey Offshore Portugal (FU 28-29) – NepS.....</i>	<i>64</i>
<i>Flemish Cap Groundfish Survey (FCGS).....</i>	<i>67</i>
<i>Acoustic Survey for Juvenile Anchovy Sardine in the Western Iberia – IBERAS.....</i>	<i>69</i>
<i>Western IBTS 4th quarter (IBTS_Q4).....</i>	<i>72</i>
<i>Azores Demersal Spring Survey - ARQDAÇO.....</i>	<i>75</i>
SECTION 3: FISHING ACTIVITY DATA	77
TEXT BOX 3.1: FISHING ACTIVITY VARIABLES DATA COLLECTION STRATEGY	77
TEXT BOX 3.2: FISHING ACTIVITY VARIABLES DATA COLLECTION STRATEGY (FOR INLAND EEL COMMERCIAL FISHERIES).....	77
SECTION 4: IMPACT OF FISHERIES ON MARINE BIOLOGICAL RESOURCES	79
TEXT BOX 4.2: INCIDENTAL CATCHES OF SENSITIVE SPECIES	79

<i>Region “North-East Atlantic” / RFMO/RFO/IO “ICES”</i>	79
<i>Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”</i>	86
<i>Region “Other regions” / RFMO/RFO/IO “NAFO”</i>	89
<i>Region “Other regions” / RFMO/RFO/IO “IOTC”</i>	91
<i>Region “Other regions” / RFMO/RFO/IO “ICCAT”</i>	94
<i>Region “Other regions” / RFMO/RFO/IO “CECAF”</i>	100
<i>Region “Outermost regions” / RFMO/RFO/IO “NA”</i>	103
TEXT BOX 4.3: FISHERIES IMPACT ON MARINE HABITATS	106
SECTION 5: ECONOMIC AND SOCIAL DATA IN FISHERIES	109
TEXT BOX 5.2: ECONOMIC AND SOCIAL VARIABLES FOR FISHERIES DATA COLLECTION.....	109
SECTION 6: ECONOMIC AND SOCIAL DATA IN AQUACULTURE	110
TEXT BOX 6.1: ECONOMIC AND SOCIAL VARIABLES FOR AQUACULTURE DATA COLLECTION.....	110
SECTION 7: ECONOMIC AND SOCIAL DATA IN FISH PROCESSING	111
TEXT BOX 7.1: ECONOMIC AND SOCIAL VARIABLES FOR FISH PROCESSING DATA COLLECTION	111
ANNEX 1.1 - QUALITY REPORT FOR BIOLOGICAL DATA SAMPLING SCHEME	112
TABLE 2.2 - PLANNING OF SAMPLING FOR BIOLOGICAL VARIABLES	112
<i>North-East Atlantic/Azores: SciObsOnShore * Biological parameters specific</i>	112
<i>Outermost regions/Azores: SciObsOnShore * Biological parameters specific</i>	117
<i>Other regions/Azores: SciObsOnShore * Biological parameters specific</i>	120
<i>North-East Atlantic/Mainland: SciObsOnShore * Biological parameters specific</i>	124
<i>Other regions/Madeira (CECAF): SciObsOnShore * Biological parameters specific</i>	128
<i>Other regions/Madeira (ICCAT): SciObsOnShore * Biological parameters specific</i>	133
<i>Outermost regions/Madeira (NA): SciObsOnShore * Biological parameters specific</i>	137
TABLE 2.3 - DIADROMOUS SPECIES DATA COLLECTION IN FRESHWATER.....	141
<i>PT-ELE-commercial fishing-logbooks</i>	141
<i>PT-ELE-fishery-independent-stow nets</i>	144
<i>PT-ELE-fishery-independent-electrofishing</i>	147
<i>PT-ELE-fishery-independent-fyke nets</i>	150
<i>PT-ELE-fishery-independent-eel pass</i>	153
TABLE 2.4 - RECREATIONAL FISHERIES	156
<i>North-East Atlantic: PT_ON_Sci_Shore</i>	156
<i>North-East Atlantic: AZ_OFF_EM_Touristic</i>	163
<i>North-East Atlantic: AZ_OFF_EM_LicenseSyst</i>	167
<i>North-East Atlantic: AZ_OFF_EM_Recreational</i>	171
<i>Other regions: AZ_OFF_EM_Touristic</i>	175
<i>Other regions: AZ_OFF_EM_LicenseSyst</i>	179
<i>Other regions: AZ_OFF_EM_Recreational</i>	183
TABLE 2.5 - SAMPLING PLAN DESCRIPTION FOR BIOLOGICAL DATA	187
<i>Azores On Shore ICES</i>	187
<i>Azores On Shore ICCAT</i>	192
<i>Azores On Shore NA</i>	196
<i>Azores At Sea ICES</i>	200
<i>Azores At Sea ICCAT</i>	205
<i>Azores At Sea NA</i>	209
<i>Mainland On Shore ICES</i>	213
<i>Mainland On Shore Species Focus Size Category ICES</i>	219
<i>Mainland At Sea ICES</i>	223
<i>Mainland At Sea ICES 1,2</i>	Erro! Marcador não definido.
<i>Mainland At Sea NAFO</i>	Erro! Marcador não definido.

<i>Mainland At Sea IOTC</i>	239
<i>Mainland At Sea ICCAT</i>	243
<i>Mainland On Shore ICCAT</i>	247
<i>Madeira On Shore CECAF</i>	251
<i>Madeira At Sea CECAF</i>	256
<i>Madeira On Shore ICCAT</i>	261
<i>Madeira At Sea ICCAT</i>	265
<i>Madeira On Shore NA</i>	269
TABLE 2.6 - RESEARCH SURVEYS AT SEA	273
<i>MEGS</i>	273
<i>SDEPM</i>	277
<i>SAHMAS</i>	281
<i>NepS</i>	285
<i>FCGS</i>	288
<i>IBTS_Q4</i>	296
<i>IBERAS</i>	300
<i>ARQDAÇO</i>	304
ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC DATA SAMPLING SCHEME	309
<i>Fisheries</i>	309
<i>Aquaculture</i>	313

SECTION 1: GENERAL INFORMATION

Data collection framework at national level

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

Outline the general framework of the national data collection programme in relation to the relevant sections of the EU MAP. If applicable, indicate major methodological changes in approach compared to previous year(s), and to which section(s) they apply.

Give full name, acronym and contact details of all institutes that contribute to the data collection activities, and describe briefly their role in the work plan.

Provide a link to the national data collection website, if there is one.

There are four entities/institutes involved in the planning and in the implementation of the Portuguese collection and management of data in the fisheries and aquaculture sectors:

- Direcção-Geral dos Recursos Naturais, Segurança e Serviços Marítimos / Directorate General for Natural Resources, Safety and Maritime Services (DGRM)

-Postal address: Av. Brasília, 1449-030 Lisboa

-Phone: +351213035700

-Email: dgrm@dgrm.mm.gov.pt

-Website: <https://www.dgrm.mm.gov.pt>

Responsible for: National correspondent; Collection, processing and compiling transversal and economic data; National database which includes all primary data for the national fleet, such as landings, fishing logbooks and fleet registry data.

- Instituto Português do Mar e da Atmosfera / Portuguese Institute for Sea and Atmosphere (IPMA)

-Postal address: Rua C do Aeroporto, 1749-077 Lisboa

-Phone: +35121302700

-Email: info@ipma.pt

-Website: <https://www.ipma.pt>

Responsible for: Collection, processing and compiling scientific/biological data for Mainland - ICES Sub-area 9 and for the stocks under the management of: North-East Atlantic Fisheries Commission (NEAFC), Northwest Atlantic Fisheries Organization (NAFO), International Commission for the Conservation of Atlantic Tunas (ICCAT) and Indian Ocean Tuna Commission (IOTC).

- Direção Regional das Pescas da Região Autónoma dos Açores / Regional Directorate for Fisheries in Azores (DRP/RAA)

-Postal address: Rua Consul Dabney- Colónia Alemã -Apartado 9 9900-014 Horta

-Phone: +351292202400

-Email: info.drp@azores.gov.pt

-Website: <https://portal.azores.gov.pt>

Responsible for: Collection, processing and compiling transversal and scientific/biological data in the area of the Portuguese EEZ corresponding to ICES Sub-area 10 and stocks under the management of: [International Commission for the Conservation of Atlantic Tunas \(ICCAT\)](#).

- Direção Regional do Mar da Região Autónoma da Madeira/ Regional Directorate for the Sea in Madeira (DRM/RAM)

-Postal address: Lota do Funchal -1º Piso, Rua Virgílio Teixeira, 9004-562 Funchal

-Phone: +351291203270

-Email: drm@madeira.gov.pt

- Website: <https://www.marmadeira.com>

Responsible for: Collection, processing and compiling transversal and scientific/biological data in sub-area of the Portuguese EEZ corresponding to CECAF Division 34.1.2, namely stocks under the management of [International Commission for the Conservation of Atlantic Tunas \(ICCAT\)](#).

- National Correspondent: Emília Maria Correia Batista

-Postal address: Av. Brasília, 1449-030 Lisboa

-Phone: +351213035850

-Email: crossa@dgrm.mm.gov.pt

- National data collection website: <https://www.dgrm.mm.gov.pt/web/guest/pnrd>

Text Box 1a: Test studies description

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

1. Aim of the test study

2. Duration of the test study

3. Methodology and expected outcomes of the test study

(max 900 words per study)

Brief description of the results (including deviations from the plan and justifications as to why if this was the case).

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

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

(max. 900 words per study)

Text Box 1b: Other data collection activities

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

1. Aim of the data collection activity

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

2. Duration of the data collection activity

Starting from 2023

3. Methodology and expected outcomes of the data collection activity

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

Brief description of the results (including deviations from the plan and justifications as to why if this was the case).

Project SecWeb provided administrative support to the functioning and chairing of the RCGs. No deviations.

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

Administrative support provided by project SecWeb to the functioning and chairing of the RCG was very important in supporting the work of the RCGs and contributing to their effectiveness.

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

Continuation throughout the WP of such an administrative support to the functioning and chairing of the RCGs would contribute highly to the effectiveness of the RCG.

(max. 900 words per study)

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

1. Aim of the data collection activity

Regarding marine recreational fisheries (MRF), and according to Article 5(2)(a), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II, point 2.2 of the EU MAP Delegated Decision, Madeira Archipelago fishing area (CECAF 34.1.2), is not listed in Table 4, and therefore holds no legal obligation to report fisheries data on recreational fishing activities. In spite of this, Madeira Autonomous Region has the best interest in the establishment of a coherent baseline data collection for MRF, concerning the three main recreational fishing modalities: spearfishing, shore angling and big game fishing.

As such, the main purpose of the following test study is to analyse species-specific catch data related to the main recreational fishing activities in Madeira archipelago, in order to assess their impact compared to commercial fishing, and hence determine the socio-economic relevance of such activities for the population. Additionally, data collection on spearfishing, shore angling and big game fishing will help to reach balanced regulations on MRF to maintain a sustainable exploration of the marine resources by increasing the overall knowledge about these fisheries in Madeira archipelago.

2. Duration of the data collection activity

The study will take place between 2022 and 2024.

3. Methodology and expected outcomes of the data collection activity

Species composition, weight and length, and fishing effort data recorded until present has been based from both off-site and on-site methodologies lacking consistency. Consequently, we now propose to

design an on-site survey dedicated to spearfishing and shore angling, with data collection on both catches and releases species composition. Sampling will take place at tournaments/championships, since most of them are multispecies tournaments, characterized by a set of standardized rules (same effort, gear, bait and species catch sizes) applied to a representative population of fishermen. These records will allow to obtain catches volume, discards and releases for recreational target and nontarget species composition, especially for coastal fish (both benthic and pelagic). When considering the highly migratory species traditionally targeted by big game fishing, data collection will be assured by the distribution of a recall survey and logbooks in the ports of Funchal and Calheta. Tending in consideration big gamers traditionally practice a catch and release technique regarding the main target species blue marlin, *Makaira nigricans* (Lacepède, 1802), only in the event of a weight broken record will the scientific observers have a chance to determine individual's length and weight. The above-mentioned recall survey consists of an individual fishermen's personal socio-economic characterization including catch composition, catch and fishing effort data. Logbooks' content is marked by species name, estimated length and weight, and effort data. All data is to be collected by DRM's team of scientific observers at regional tournaments/championships.

The online portal (www.marmadeira.com) will be updated in order to facilitate license, information, and evaluation of data collection methods to be implemented for licensed recreational fishers.

Expected outcomes:

- Sampling at least 50% of regional tournaments/championships annually;
- The development of a baseline sampling methodology for spearfishing, shore angling and big game fishing, in order to ensure a continuous pattern of data collection;
- Through the collection of species-specific data, to rightfully assess the impact of spearfishing, shore angling and big game fishing;
- Through the collection of species-specific data, to rightfully assess the impact of shore angling for both target and non-target species, i.e., for catches and discards;
- The collection of modality-specific effort data (mean catch x trip/fishing event);

(max 900 words per activity)

Brief description of the results (including deviations from the plan and justifications as to why if this was the case).

In 2022, 5 622 licenses were emitted for the practice of all modalities of Recreational Fisheries in the islands of Madeira and Porto Santo. This represents a decrease of 1.4% when compared to 2021. The total of licenses emitted, corresponds to a regional revenue of 79 046 €, taking into consideration that 10.5% of 2022 licenses are considered free of payment. The license revenue of Recreational Fisheries in the Autonomous Region of Madeira is lower than ones of Commercial Fisheries, which present a total value of 1 770.25 €, with 99 licenses being emitted for the vessel registered in the Region, in 2022.

In the regional spearfishing competition, the most caught species was *Sparisoma cretense* (Linnaeus, 1758), with 90 individuals, followed by *Diplodus sargus* (Linnaeus, 1758), with 19 individuals. All

S. cretense specimens were classified into female and male, with 35 females, 52 males determined and the sex of the remaining 3 individuals was indetermined.

Catches reached a total of 153 specimen caught, during 5 hours of the spearfishing competition. The average number of fishes caught by each fisherman of the spearfishing competition, was 5.67 ± 4.154 . The average weight of fishes caught by each fisherman was $4.1 \text{ kg} \pm 0.495$. In this tournament, the average number of fish caught per hour, was 30.60 individuals, corresponding to an average weight of fish caught per hour of 22.10 kg. The CPUE (number of fishes caught by fisherman, per hour) was estimated at 1.13 and the CPUE (kgs of fish caught by fisherman and per hour) was estimated at 0.82.

Regarding regional shore angling competitions, the most caught species was *Thalassoma pavo* (Linnaeus, 1758), with 1631 individuals, followed by *Similiparma lurida* (Cuvier, 1830), with 1593 individuals and *Sphoeroides spengleri* (Bloch, 1785), with 1200 individuals caught. Registered tournaments in 2022 add up a total of 100 hours of fishing effort and 7407 specimens caught. All the values presented are related to all 19 shore angling competitions. The average number of fishes caught per tournament, was 389.84 ± 261.01 . The average weight of fishes caught per tournament was $22.06 \text{ kg} \pm 17.76$.

From the obtained results, it was possible to characterize the variation of fishing effort and catches composition per competition. The average number of fish caught by each fisherman, was 14.67 individuals. The average weight of fishes caught by each fisherman was 0.83 kg. The average number of fish caught per hour, was 88.18 individuals. The average weight of fish caught per hour was 4.99 kg. The CPUE (number of fishes caught by fisherman and per hour) it was estimated at 0.17 and the CPUE (kgs of fish caught by fisherman and per hour) was estimated at 0.01. All these values were also calculated by each tournament.

In the BGF competitions, in 2022, only one specimen of *Makaira nigricans* Lacepède, 1802 was brought to land in the 3 tournaments organized. The weight of this individual was 283 kg.

During 2022, 14 logbooks were delivered filled out, by Big Game fishermen. Data analysis showed that the most preferable fishing locations were Cabo Girão and Ponta do Sol, with all fishing events happening between May and July. Most of the fishers (n=8) chose to fish between 9h and 17h, using an average of 4 lines per fishing trip. In total, 54 fishermen captured 13 fishes from 5 different species and the most common one was *Dentex gibbosus* (Rafinesque, 1810). These fishing events had a CPUE of 0.24 specimens by fishermen.

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

All regional tournaments/championships of the recreational fisheries were sampled ensuring a continuous pattern of data collection. This included a collection of modality-specific effort data.

The questionnaires used to obtain statistical data on catches per unit of effort of the recreational fishermen in the region of Madeira, had a very high rejection rate. These surveys were made available on the online platform, a platform independent of licensing, reaching especially highly migratory species traditionally targeted by Big Game Fishing, however they presented a very high rejection rate, with only 14 surveys filled.

Incorporation of study results into regular sampling by the Member State

Continue to raise awareness among recreational fishermen for the establishment of the baselines for a sampling scheme in the Autonomous Region of Madeira in a near future.

(max. 900 words per study)

SECTION 2: BIOLOGICAL DATA

Text Box 2.1: List of required species/stocks

Region “North-East Atlantic” / RFMO/RFO/IO “ICES”

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

Deviations from the work plan

List the deviations (if any) in the achieved data collection (lengths only) compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the ‘AR comments’ column in Table 2.1.

Among the sampling scheme identifiers ("Mainland On Shore ICES", "Mainland On Shore Species Focus Size Category ICES", "Mainland At Sea ICES", "Azores On Shore ICES", "Azores At Sea ICES") where this species can be sampled, some were implemented with lower achievement than planned. In addition, sampling of species is concurrent and depends on catches.

Sampling scheme identifier: Mainland On Shore ICES

-In what concerns sampling scheme identifier "Mainland On Shore ICES" in 2022, the implementation of some sampling frame identifiers was lower than planned especially in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports, and mostly due to logistical issues especially concerning the travel of scientific observers to the ports.

The implementation of some sampling frame identifiers was higher than planned since at a given auction*day, while observers are waiting to sample several schemes, time is used to sample other schemes with no additional cost.

Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES

-In what concerns sampling scheme identifier “Mainland On Shore Species Focus Size Category ICES” in 2022, the implementation of the sampling scheme/frame identifier was lower than planned due to logistical issues especially concerning the travel of scientific observers to the ports, and also

in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports.

Sampling scheme identifier: Mainland At Sea ICES

-In what concerns sampling scheme identifier "Mainland At Sea ICES" in 2022, the implementation of this sampling scheme identifier was lower than planned due to the delay in the hiring procedure of an external company to perform scientific observation at sea.

Sampling scheme identifier: Azores On Shore ICES

-In what concerns sampling scheme identifier "Azores On Shore ICES" in 2022, the implementation of some sampling frame identifiers was lower than planned. There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in three main ports (SCF, MAD, VDP). The effect this had in sampling achieved is dependent of the port to which each of the sampling frames were planned: SCF, MAD and VDP for AZM1 – LHP_FIF and AZM27 – FPO; SCF and MAD for AZM14 – LHP_CEP and MAD for AZM18 – PS_SPF. Also, the severe weather and heavy sea conditions verified in the last quarter of the sampling year resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected. In addition, the new observers had a period of training and to know their way around first, including gaining captain's and crew members' trust.

The implementation of some sampling frame identifiers was higher than planned since additional sampling occurred of AZM43 - LLS_DWS_<12m with no extra costs, benefiting of the presence of observers in the landing ports (PDL and SMT) at a given auction*day, while observers are waiting to sample several schemes, time is used to sample other schemes with no additional cost.

Sampling scheme identifier: Azores At Sea ICES

-In what concerns sampling scheme identifier "Azores At Sea ICES" in 2022, the implementation of this sampling scheme identifier was lower than planned. The main reasons are due to a delay in the administrative procedures concerning the public contracting of scientific observers. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports). The combination of these factors led to a shortage in the number of trips sampled from all the sampling frames with the exception made of 'Purse seiners for small pelagic fish: At-sea' (AZS20 – PS_SPF). This happens because blue jack mackerel is captured in shelter bays very close to shore, and particularly in São Miguel Island where two of the scientific observers are based, this condition allows to conduct this fishing operation even with bad weather forecast.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland On Shore ICES

- Sampling frame identifiers: PTOS1 - FPO_MOL _ Main ports _ ICES 27.9.a, PTOS3 - GNS_GTR_DEF _ Main ports _ ICES 27.9.a

No actions needed.

- Sampling frame identifiers: PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a, PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29

Efforts are being made to increase human resources allocated to sampling in fishing ports.

Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022.

- Sampling frame identifiers: PTOS5 - LLS_DEF _ Main ports _ ICES 27.9.a, PTOS7 - LLS_DWS _ Single main port _ ICES 27.9.a, PTOS13 - PS_SPF _ Main ports _ ICES 27.9.a, PTOS15 - TBB_MCD _ Main ports _ ICES 27.9.a

No additional cost. No actions needed.

Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES

- Sampling frame identifier: PTOS17 - SF_SC_HOM _ Main ports _ ICES 27.9.a

Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022.
Efforts are being made to increase human resources allocated to sampling in fishing ports.

Sampling scheme identifier: Mainland At Sea ICES

- Sampling frame identifier: PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame, PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame, PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame, PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame, PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame, PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame

In 2023, efforts are being made to implement this sampling scheme identifier. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in June 2023.

Sampling scheme identifier: Azores On Shore ICES

- Sampling frame identifier: AZM1 – LHP_FIF, AZM14 – LHP_CEP, AZM18 – PS_SPF, AZM27 – FPO, AZM43 - LLS_DWS_<12m, AZM45 - LLS_DWS_>12m

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea ICES

- Sampling frame identifier: AZS4 – LHP_FIF, AZS16 – LHP_CEP, AZS20 – PS_SPF, AZS28 – FPO, AZS47 - LLS_DWS_<12m, AZS49 - LLS_DWS_>12m

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”

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

Deviations from the work plan

List the deviations (if any) in the achieved data collection (lengths only) compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the ‘AR comments’ column in Table 2.1.

The sampling scheme identifier ("Mainland At Sea ICES 1,2") where these species can be sampled was achieved as planned. Sampling of species is concurrent and depends on catches.

No deviations.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “NAFO”

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

Deviations from the work plan

List the deviations (if any) in the achieved data collection (lengths only) compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the ‘AR comments’ column in Table 2.1.

The sampling scheme identifier ("Mainland At Sea NAFO") where these species can be sampled was achieved as planned. Sampling of species is concurrent and depends on catches.

No deviations.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “IOTC”

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

Deviations from the work plan

List the deviations (if any) in the achieved data collection (lengths only) compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the 'AR comments' column in Table 2.1.

The sampling scheme identifier ("Mainland At Sea IOTC") where these species can be sampled was not achieved as planned, therefore sampling of species was not implemented.

In 2022, it was not possible to implement this sampling scheme identifier due to the delay in the hiring procedure of an external company to perform scientific observation at sea. When the hiring procedure was finished, it was too late to implement this sampling scheme identifier.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

In 2023, efforts are being made to implement this sampling scheme identifier. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in May 2023.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region "Other regions" / RFMO/RFO/IO "ICCAT"

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

Deviations from the work plan

List the deviations (if any) in the achieved data collection (lengths only) compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the 'AR comments' column in Table 2.1.

Among the sampling scheme identifiers ("Mainland On Shore ICCAT", "Mainland At Sea ICCAT", "Azores On Shore ICCAT", "Azores At Sea ICCAT", "Madeira On Shore ICCAT", "Madeira At Sea ICCAT") where this species can be sampled, some were implemented with lower achievement than planned. In addition, sampling of species is concurrent and depends on catches.

Sampling scheme identifier: Mainland On Shore ICCAT

-In what concerns sampling scheme identifier "Mainland On Shore ICCAT" in 2022, it was not possible to implement the sampling scheme identifier "PTOS19 - LLD_LPF _ Single main port _ ICCAT" due to the unexpected exit (in the first trimester of 2022) of the single scientific observer that performed this scientific observation on shore, which occurs at night in a specific port. In 2022, the implementation of this sampling frame identifier "PTOS21 - FPN_LPF _ Single main port _ ICCAT" was lower than planned due to changes in the fishing strategy.

Sampling scheme identifier: Mainland At Sea ICCAT

-In what concerns sampling scheme identifier "Mainland At Sea ICCAT" in 2022, the implementation of this sampling scheme identifier was lower than planned due to the delay in the hiring procedure of an external company to perform scientific observation at sea and due to very high industry refusal rates.

Sampling scheme identifier: Azores On Shore ICCAT

-In what concerns sampling scheme identifier "Azores On Shore ICCAT" in sampling frame identifiers "AZM24 - LHP_LPF_<12m", "AZM25 - LHP_LPF_>12m" there was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in two main ports (MAD, VDP). The closure of bigeye tuna fishery in July resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected. In sampling frame identifier "AZM29 - LLD_LPF" the closure of the fishery in the last quarter of the year prevented the planned number of samples from being reached. Length measurements from landings of handliners (pole and line) for tuna were also recorded using the Fishmetrics system (an electronic system composed by a local unit for automatic image acquisition of fish boxes and a remote database to record the processed images). It is more difficult for swordfish to use the system to measure landings from drifting longline because the image does not show the individual's entire body.

Sampling scheme identifier: Azores At Sea ICCAT

- In what concerns sampling scheme identifier "Azores At Sea ICCAT" no sampling occurred in the remit of DCF because of a delay in the administrative procedures related with the public contracting of scientific observers that resumed only in October, overlapping with quota regulation that determined fisheries closure. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application.

Sampling scheme identifier: Madeira At Sea ICCAT

-In what concerns sampling scheme identifier "Madeira At Sea ICCAT" the non implementation of the on board observer programme and 29% reduction in fishing trips for this fishery, in relation to the reference years, contributed to non-compliance with the number of PSUs planned.

Sampling scheme identifier: Madeira On Shore ICCAT

-In addition, in the sampling scheme identifier "Madeira On Shore ICCAT" logistical difficulties to travel of scientific observers to remote fishing ports for the realization of the on shore sampling activities contributed to the non-compliance with the number of the planned PSUs.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland At Sea ICCAT

- Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

In 2023, efforts are being made to increase the achievement of the sampling scheme identifier "Mainland At Sea ICCAT", namely with the hiring of the services of an external company to implement a large percentage of the PSUs planned. The hiring process was signed in April 2023 and it is expected that implementation will start in May 2023.

Sampling scheme identifier: Mainland On Shore ICCAT

- Sampling frame identifier: PTOS19 - LLD_LPF _ Single main port _ ICCAT

In 2023, efforts are being made to restart the implementation of this sampling scheme identifier, through the reassignment of tasks among scientific observers.

- Sampling frame identifier: PTOS21 - FPN_LPF _ Single main port _ ICCAT

No actions needed.

Sampling scheme identifier: Madeira On Shore ICCAT

- Sampling frame identifier: LPF1_ M3

No actions needed.

Sampling scheme identifier: Madeira At Sea ICCAT

- Sampling frame identifier: LPF2_M3

The issue continues to receive attention and efforts are being made to ensure the implementation of the on board of scientific observer programme during 2023. Additionally, Madeira is exploring the possibility to implement a remote electronic monitoring system in some vessels of pole and line fisheries in the region.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 - LLD_LPF

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 - LLD_LPF

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “CECAF”

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

Deviations from the work plan

List the deviations (if any) in the achieved data collection (lengths only) compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the ‘AR comments’ column in Table 2.1.

Among the sampling scheme identifiers ("Madeira At Sea CECAF", "Madeira On Shore CECAF") where these species can be sampled some were implemented with lower achievement than planned. In addition, sampling of species is concurrent and depends on catches.

In the sampling scheme identifier "Madeira At Sea CECAF" logistical difficulties related to safety and the high refusal rate to take observers on board contributed to non-compliance with the number of PSUs planned.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifiers "Madeira On Shore CECAF": No actions needed.

In the sampling scheme identifier "Madeira At Sea CECAF", the issue continues to receive attention in 2023 and efforts are being made to ensure the implementation of the on board of scientific observer programme. Additionally, Madeira is exploring the possibility to implement a remote electronic monitoring system in some vessels of deep-water fisheries in the region.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region "Outermost regions" / RFMO/RFO/IO "NA"

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

Deviations from the work plan

List the deviations (if any) in the achieved data collection (lengths only) compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the 'AR comments' column in Table 2.1.

Among the sampling scheme identifiers ("Azores On Shore NA", "Azores At Sea NA", "Madeira On Shore NA") where these species can be sampled some were implemented with lower achievement than planned. In addition, sampling of species is concurrent and depends on catches.

In the sampling scheme identifier "Azores On Shore NA" there was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in one main port (VDP). Also, the severe weather and

heavy sea conditions verified in the last quarter of the sampling year resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected.

In the sampling scheme identifier “Azores At Sea NA” there was a delay in the administrative procedures concerning the public contracting of scientific observers. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out.

Length measurements from landings of sampling frame identifier “AZM22 – GNS_MPD” were also recorded using the Fishmetrics system (an electronic system composed by a local unit for automatic image acquisition of fish boxes and a remote database to record the processed images). This was not possible to use from landings of “AZM51 – GRAPP” because the system still needs to be optimized for this type of taxon.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

In the sampling scheme identifier “Azores On Shore NA”, no action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

In the sampling scheme identifier “Azores At Sea NA”, the number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Text Box 2.2: Planning of sampling for biological variables

Region “North-East Atlantic” / RFMO/RFO/IO “ICES”

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.

Deviations from the work plan

List the deviations (if any) in the achieved collection of biological data (other than lengths), compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the 'AR comments' column in Table 2.2.

Opportunistic (O) sampling:

Sampling was opportunistic and no number of individuals to sample was defined, therefore there are no deviations to the work plan. Still, we note that sampling of species is concurrent and depends on catches.

Sampling scheme identifiers “MEGS”, “SAHMAS”, “NepS”, “IBTS_Q4”

Achievement: Research surveys at sea generally achieved as planned.

MEGS is directed at demersal species, SAHMAS is directed at small pelagic fishes, and NepS IBTS_Q4 are directed at demersal and benthic species,.

Sampling scheme identifier “Mainland On Shore ICES”

Achievement: Among the sampling frame identifiers of this sampling scheme identifier ("Mainland On Shore ICES") some were implemented with lower achievement than planned, some with higher achievement than planned, and some as planned.

In what concerns sampling frame identifiers with higher achievement than planned:

- a) At a given auction*day, while observers are waiting to sample several schemes, time is used to sample other schemes with no additional cost.

In what concerns sampling frame identifiers with lower achievement than planned – The two main limitations were:

- b) especially in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports;
- c) mostly due to logistical issues especially concerning the travel of scientific observers to the ports.

Sampling scheme identifier “Mainland At Sea ICES”

Achievement: Sampling not achieved as planned, with much fewer PSUs achieved than planned.

Limitations in implementing the sampling scheme identifier "Mainland At Sea ICES" due to the delay in the hiring procedure of an external company to perform scientific observation at sea.

Sampling scheme identifier “Azores At Sea ICES”

Achievement: Sampling not achieved as planned, with much fewer PSUs achieved than planned.

The main reasons for deviations in at-sea sampling frames are due to a delay in the administrative procedures concerning the public contracting of scientific observers. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports). The combination of these factors led to a shortage in the number of trips sampled from all the sampling frames with the exception made of 'Purse seiners for small pelagic fish: At-sea' (AZS20 – PS_SPF). This happens because blue jack mackerel is captured in shelter bays very close to shore, and particularly in São Miguel Island where two of the scientific observers are based, this condition allows to conduct this fishing operation even with bad weather forecast.

Sampling scheme identifier “ARQDAÇO”

Achievement: Sampling not achieved as planned.

The 2022 monitoring campaign for the abundance of demersal fish in the Azores archipelago did not go as planned. The failure to comply with the initial plan, which foresaw the sampling of the coast of the nine islands and the three emblematic fishing grounds of the Region, was due to a strike by the crew of the “N/I Arquipélago”. This unexpected situation lasted for the entire ship's time available for the annual demersal monitoring cruise.

Planned (P) sampling:

Sampling was planned and number of individuals to sample was defined.

Sampling scheme identifier “Mainland On Shore Species Focus Size Category ICES”

Achievement: Generally achieved as planned, with a fewer PSUs achieved than planned, and sampling of species and biological variables was affected:

Trachurus trachurus (Age, Weight, Sex, Maturity)

Logistical issues especially concerning the travel of scientific observers to the ports, and also in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports.

Sampling scheme identifier “SciObsOnShore * Biological parameters specific”

Achievement: Generally achieved as planned, except for the following deviations:

In the following species with “Sampling planned for Mainland (ICES 9a)” (Column WP Comments) sampling was below planned:

Aphanopus carbo (Age, Weight, Sex, Maturity) - Species is not readily available for purchase at the fishing port, some logistical failures in the articulation with the intermediary company which is needed for the purchase of samples.

Merluccius merluccius (Weight, Sex, Maturity) - Difficulty in purchasing samples since large commercial sizes are more frequently landed gutted.

Raja montagui (Weight, Sex, Maturity) - Difficulty in purchasing samples since species is often landed mixed especially with another species (*Raja brachyura*) which is more frequently landed.

In the following species with “Sampling planned for Mainland (ICES 9a)” (Column WP Comments) sampling was above planned:

Dicentrarchus labrax (Weight), *Solea solea* (Weight), *Solea senegalensis* (Weight), Sparidae - *Diplodus vulgaris* (Weight), Sparidae - *Diplodus sargus* (Weight), Sparidae - *Sparus aurata* (Weight) - At a given auction*day, while observers are waiting to sample several schemes, time is used to sample this variable with no additional cost. Samples are not purchased.

Engraulis encrasicolus (Age, Weight, Sex, Maturity) - Increase effective sample size for WGHANSA.

Trisopterus spp. (Age, Weight, Sex, Maturity) - Slight failure in monitoring of implementation of sampling.

In the following species with “Sampling planned for Mainland (ICES 9a) and Azores (ICES 10).” (Column WP Comments) sampling was below planned in Azores:

Scomber colias (Age, Weight, Sex, Maturity) and *Trachurus picturatus* (Age, Weight, Sex, Maturity).

Main reasons were:

- a) supplemental laboratory infrastructure in S. Miguel Island still lacking;
- b) scarce landings at the port with laboratory from the adult fraction of the population once these species are very often used as bait in hook and lines fisheries.

In the following species with “Sampling planned for Azores (ICES 10).” (Column WP Comments) sampling was below planned:

Beryx spp. - *Beryx splendens* (Age, Weight, Sex, Maturity), *Conger conger* (Age, Weight, Sex, Maturity), *Helicolenus dactylopterus* (Age, Weight, Sex, Maturity), *Pagellus bogaraveo* (Age, Weight, Sex, Maturity), *Phycis phycis* (Age, Weight, Sex, Maturity) and *Raja clavata* (Weight, Sex, Maturity).

Main reasons were:

- c) supplemental laboratory infrastructure in S. Miguel Island still lacking;
- d) scarce landings at the port with laboratory;
- e) local quota regulation managed by trimester often determined fisheries closure decreasing the number of individuals available for sampling;
- f) *Beryx splendens* fishing possibilities was closed during the entire second semester.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Opportunistic (O) sampling:

Sampling scheme identifiers “MEGS”, “NepS”, “SAHMAS”, “IBTS_Q4”:

No actions needed.

Sampling scheme identifier “Mainland On Shore ICES”:

- a) No actions needed.
- b) Efforts are being made to increase human resources allocated to sampling in fishing ports.
- c) Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022.

Sampling scheme identifier “Mainland At Sea ICES”:

In 2023, efforts are being made to implement this sampling scheme identifier. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in June 2023.

Sampling scheme identifier “Azores At Sea ICES”:

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. No action will be considered once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier “ARQDAÇO”:

All efforts were implemented to solve the strike situation and the 2023 survey is already in ongoing.

Planned (P) sampling:

-Sampling scheme identifier “Mainland On Shore Species Focus Size Category ICES”

Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022. Efforts are being made to increase human resources allocated to sampling in fishing ports.

-Sampling scheme identifier “SciObsOnShore * Biological parameters specific”

In Mainland, efforts are being made to improve monitoring of sampling within the sampling year, and to increase human resources allocated to sampling in fishing ports. Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022.

Although without success, several actions were undertaken during 2022 to overcome the lack of the second laboratory facility in the Azores. This infrastructure was planned for São Miguel Island. New efforts will be considered during 2023, once the access to samples in its two main ports would be further facilitated due to the significantly more representative number of samples available. Direct contact with captains will continue, in order to assure the number of individuals needed for sampling of blue jack mackerel and spanish mackerel.

(One text box of max. 1 000 words per region/RFO/IO)

Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.

Deviations from the work plan

List the deviations (if any) in the achieved collection of biological data (other than lengths), compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the ‘AR comments’ column in Table 2.2.

Opportunistic sampling:

Sampling was opportunistic and no number of individuals to sample was defined, therefore there are no deviations to the work plan. Still, we note that sampling of species is concurrent and depends on catches.

Sampling scheme identifier "Mainland At Sea ICES ICES 1,2":

Achievement: Achieved as planned.

No deviations.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Opportunistic sampling:

- Sampling scheme identifier "Mainland At Sea ICES ICES 1,2":

No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “NAFO”

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.

Deviations from the work plan

List the deviations (if any) in the achieved collection of biological data (other than lengths), compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the 'AR comments' column in Table 2.2.

Opportunistic sampling:

Sampling was opportunistic and no number of individuals to sample was defined, therefore there are no deviations to the work plan. Still, we note that sampling of species is concurrent and depends on catches.

Sampling scheme identifier "Mainland At Sea NAFO":

Achievement: Achieved as planned.

No deviations.

Actions to avoid deviations.

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Opportunistic sampling:

Sampling scheme identifier "Mainland At Sea NAFO":

No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region "Other regions" / RFMO/RFO/IO "IOTC"

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.

Deviations from the work plan

List the deviations (if any) in the achieved collection of biological data (other than lengths), compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the 'AR comments' column in Table 2.2.

Opportunistic (O) sampling:

Sampling of species and biological variables was opportunistic and no number of individuals to sample was defined, therefore there are no deviations to the work plan. Still, we note that since the sampling scheme identifier was not implemented, sampling of species and biological variables was not implemented.

Sampling scheme identifier "Mainland At Sea IOTC":

Achievement: No sampling achieved in 2022.

Species and biological variables planned are:

Prionace glauca (Sex)

Xiphias gladius (Weight)

Xiphias gladius (Sex)

Actions to avoid deviations.

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Opportunistic (O) sampling:

Sampling scheme identifier "Mainland At Sea IOTC":

In 2023, efforts are being made to increase the achievement of the sampling scheme identifier "Mainland At Sea IOTC", namely with the hiring of the services of an external company to implement the PSU planned. The hiring process was signed in April 2023 and it is expected that implementation will start in May 2023.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region "Other regions" / RFMO/RFO/IO "ICCAT"

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.

Deviations from the work plan

List the deviations (if any) in the achieved collection of biological data (other than lengths), compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the 'AR comments' column in Table 2.2.

Opportunistic (O) sampling:

Sampling was opportunistic and no number of individuals to sample was defined, therefore there are no deviations to the work plan. Still, we note that sampling of species is concurrent and depends on catches.

Sampling scheme identifier: “Mainland On Shore ICCAT”:

- Sampling frame identifiers “PTOS19 - LLD_LPF _ Single main port _ ICCAT” and “PTOS21 - FPN_LPF _ Single main port _ ICCAT”

Achievement:

In 2022, it was not possible to implement the sampling scheme identifier “PTOS19 - LLD_LPF _ Single main port _ ICCAT” due to the unexpected exit (in the first trimester of 2022) of the single scientific observer that performed this scientific observation on shore, which occurs at night in a specific port.

In 2022, the implementation of this sampling frame identifier “PTOS21 - FPN_LPF _ Single main port _ ICCAT” was lower than planned due to changes in the fishing strategy.

Sampling scheme identifier “Mainland At Sea ICCAT”:

- Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

Achievement: In 2022, the implementation of this sampling scheme identifier was lower than planned due to the delay in the hiring procedure of an external company to perform scientific observation at sea and due to very high industry refusal rates.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 – LLD_LPF

Achievement: Sampling not achieved as planned, with fewer PSUs achieved than planned.

In sampling frame identifiers “AZM24 - LHP_LPF_<12m”, “AZM25 - LHP_LPF_>12m” there was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in two main ports (MAD, VDP). The closure of bigeye tuna fishery in July resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected.

In sampling frame identifier “AZM29 – LLD_LPF” the closure of the fishery in the last quarter of the year prevented the planned number of samples from being reached.

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 – LLD_LPF

Achievement: Achieved as planned. However, no sampling occurred in the remit of DCF because of a delay in the administrative procedures related with the public contracting of scientific observers that resumed only in October, overlapping with quota regulation that determined fisheries closure. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application.

Planned (P) sampling:**Sampling scheme identifier: SciObsOnShore * Biological parameters specific**

Achievement: Sampling not achieved as planned at Azores for *Katsuwonus pelamis* (Age, Weight) and for *Thunnus obesus* (Age, Weight, Sex, Maturity). Main reasons were:

- g) supplemental laboratory infrastructure in S. Miguel Island still lacking;
- h) landings at the port with laboratory already had assigned contracts with industry and landed directly into cold store;
- i) closure of bigeye tuna fishery in July resulted in a decrease of the landings available for sampling.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Opportunistic sampling:**Sampling scheme identifier: “Mainland On Shore ICCAT”:**

- Sampling frame identifiers “PTOS19 - LLD_LPF _ Single main port _ ICCAT” and “PTOS21 - FPN_LPF _ Single main port _ ICCAT” of Table and Text Box 2.5

In 2023, efforts are being made to restart the implementation of the sampling scheme identifier “PTOS19 - LLD_LPF _ Single main port _ ICCAT”, through the reassignment of tasks among scientific observers.

For sampling scheme identifier “PTOS21 - FPN_LPF _ Single main port _ ICCAT” no action needed.

Sampling scheme identifier “Mainland At Sea ICCAT”:

In 2023, efforts are being made to increase the achievement of the sampling scheme identifier “Mainland At Sea ICCAT”, namely with the hiring of the services of an external company to implement a large percentage of the PSUs planned. The hiring process was signed in April 2023 and it is expected that implementation will start in May 2023.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 - LLD_LPF

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 – LLD_LPF

No action will be considered once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Planned (P) sampling:

Sampling scheme identifier: SciObsOnShore * Biological parameters specific

Katsuwonus pelamis (Age, Weight) and *Thunnus obesus* (Age, Weight, Sex, Maturity):

- a) several actions were undertaken during 2022 to overcome this situation, but still without success – new efforts will be considered during 2023;
- b) despite efforts initiated in 2022, direct contact with captains will continue in order to assure the number of individuals needed for sampling;
- c) no action planned.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “CECAF”

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.

Deviations from the work plan

List the deviations (if any) in the achieved collection of biological data (other than lengths), compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the ‘AR comments’ column in Table 2.2.

Planned (P) sampling:

Sampling was planned and number of individuals to sample was defined.

Sampling scheme identifier “SciObsOnShore * Biological parameters specific”:

Achievement: Achieved as planned.

No deviations.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Planned (P) sampling:

Sampling scheme identifier “SciObsOnShore * Biological parameters specific”:

No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Outermost regions” / RFMO/RFO/IO “NA”

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.

Deviations from the work plan

List the deviations (if any) in the achieved collection of biological data (other than lengths), compared to what was planned.

The general reasons for deviations from the work plan in terms of planned vs. achieved data collection should be summarised in this section, while detailed comments on deviations on particular species/stocks should be included in the ‘AR comments’ column in Table 2.2.

Opportunistic (O) sampling:

Sampling was opportunistic and no number of individuals to sample was defined, therefore there are no deviations to the work plan. Still, we note that sampling of species is concurrent and depends on catches.

Sampling scheme identifier “Azores At Sea NA”:

- Sampling frame identifier: AZS23 - GNS_MPD

Achievement: Sampling not achieved as planned, with fewer PSUs achieved than planned.

There was a delay in the administrative procedures concerning the public contracting of scientific observers at sea. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out

Sampling scheme identifier “Azores On Shore NA”:

- Sampling frame identifier: AZM22 - GNS_MPD

Achievement: Sampling not achieved as planned, with fewer PSUs achieved than planned.

There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in one main

port (VDP). Also, the severe weather and heavy sea conditions verified in the last quarter of the sampling year resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected.

- Sampling frame identifier: AZM51 – GRAPP

Achievement: No deviations.

Planned (P) sampling:

Sampling was planned and number of individuals to sample was defined.

Sampling scheme identifier “SciObsOnShore * Biological parameters specific”:

Achievement: Sampling not achieved as planned for *Sparisoma cretense* (Age, Weight, Sex, Maturity). Main reasons were:

- j) supplemental laboratory infrastructure in S. Miguel Island still lacking;
- k) scarce landings at the port with laboratory;
- l) at the port with laboratory facilities, only one vessel uses gillnets and, on many occasions, it has the catch already assigned by contract;
- m) local quota regulation managed by trimester often determined fisheries closure decreasing the number of individuals available for sampling

Achievement: Sampling achieved as planned for Patellidae (Weight, Sex, Maturity)

No deviations to report.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Opportunistic (O) sampling:

Sampling scheme identifier “Azores At Sea NA”:

- Sampling frame identifiers: AZS23 - GNS_MPD

No action will be considered once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier “Azores On Shore NA”:

- Sampling frame identifier: AZM22 - GNS_MPD

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

- Sampling frame identifier: AZM51 – GRAPP

No actions needed.

Planned (P) sampling:

Sampling scheme identifier “SciObsOnShore * Biological parameters specific”:

Sparisoma cretense (Age, Weight, Sex, Maturity):

- d) several actions were undertaken during 2022 to overcome this situation, but still without success – new efforts will be considered during 2023;
- e) no action planned;
- f) despite all the efforts made in 2022, direct contact with the owner will continue in order to assure the number of individuals needed for sampling;
- g) no action planned.

For Patellidae (Weight, Sex, Maturity): No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Text Box 2.3: Diadromous species data collection in freshwater

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

Method selected for collecting data:

Stock assessment requires determination of stock indicators to accomplish the goals set by the Eel Regulation (mortality and biomass indicators). Two sampling schemes are implemented in the Work Plan: PT-ELE-fishery-independent and PT-ELE-commercial fishing. Each sampling scheme is applied to two Management Units / Rivers, namely ES_Min (Bodies of water: Minho) and PT_Port (Bodies of water: Mondego and Santo André). Each sampling scheme includes several sampling methods and data obtained are used as a proxy to estimate those indicators.

Species (*Anguilla anguilla*) * Area (Management Unit / River ES_Min – Body of water Minho):

In the Minho River basin (EMU ES_Min), eel fishing is allowed only for glass eel, specifically for professional fishers between November and February (4 months / new moons). Logbooks from fishers who accept to cooperate will be analyzed to estimate CPUE (sampling scheme identifier: PT-ELE-commercial fishing).

Concerning recruitment analysis, a stow net will be used monthly in the estuary, in new moon. Position, depth, water temperature, salinity, water velocity will be recorded. In each stow net, the total weight of glass eel caught will be determined, and a subsample of individuals of glass eel will be used to determine biological variables (length, weight and pigmentation stage).

Concerning, yellow/silver eels, and for the analysis of stock abundance and sex ratio of emigrating eel, electrofishing will be used in freshwater tributaries (including different stream order classification). Fishing area (m²), stream average width, average depth, position, temperature, oxygen, visual sediment characteristics will be recorded. In addition, fyke nets will be used in different points of the estuary. All individuals (yellow and silver eels) caught in electrofishing and fyke nets are sampled for length, weight, ocular diameter and fin length (to apply Durif index that indicates life stage - silver eel) and are then returned alive, except for a subsample of individuals that is sampled for sex (only in silver eels), age and infection of the swimbladder by the parasite nematode *Anguillicola crassus*. The aim is for the number of sub-sampled individuals to be distributed between yellow and silver life stages.

(Species) *Anguilla anguilla* * (Management Unit / River) PT_Port - Mondego and Santo André (Bodies of water)

The river basin chosen to represent the PT_Port is the Mondego (estuary and freshwater) for comparison with data from the 1990's. As this EMU includes the whole country and eel production is affected by the type of aquatic system, a coastal lagoon (Santo André) is also included to represent the variety of aquatic systems (river + estuary + coastal lagoon).

As it is prohibited to fish for glass eels and silver eels in PT_Port, commercial fishery only provides data for yellow eels between January and September, when fishing is allowed. To assess fishing pressure and estimate effort, monthly logbooks will be distributed to fishers who agree to cooperate (sampling scheme identifier: PT-ELE-commercial fishing).

Data on recruitment, stock abundance and silver eel migration/production will be obtained from fishery-independent survey (sampling scheme identifier: PT-ELE-fishery-independent). Glass eels will be caught with stow nets in the Mondego estuary, and the total weight of glass eel will be determined for each stow net. A subsample of individuals of glass eel will be retained to determine biological variables (length, weight, and pigmentation stage).

In freshwater (Mondego) electrofishing will be used to estimate the density of yellow and silver eels, and an eel pass will be monitored to estimate the number of ascending yellow eels. Additionally, fyke nets will be used in the Mondego estuary and Santo André lagoon. All individuals (yellow and silver eels) caught in electrofishing and fyke nets are sampled for length, weight, ocular diameter and fin length (to apply Durif index that indicates life stage - silver eel) and are then returned alive, except for a subsample of individuals that is sampled for sex (only in silver eels), age and infection of the swimbladder by the parasite nematode *Anguillicola crassus*. The aim is for the number of sub-sampled individuals to be distributed between yellow and silver life stages.

Were the planned numbers achieved? Yes/ No

If the answer is No, explain why not, and what measures were taken to avoid non-conformity.

Species (*Anguilla anguilla*) * Area (Management Unit / River ES_Min – Body of water Minho):

In Body of water “Minho” some of the planned numbers were not achieved, namely:

- In sampling scheme identifier “PT-ELE-fishery-independent-electrofishing”, in one of the seasons (Spring) sampling was achieved as planned (15 sites), but in the other season (Autumn) only 5 of the 15 planned sites could be achieved and the others could not be achieved due to heavy rainfall.

(Species) *Anguilla anguilla* * (Management Unit / River) PT_Port - Mondego and Santo André (Bodies of water)

In Body of water “Santo André” planned numbers were achieved. However:

-In sampling scheme identifier “PT-ELE-fishery-independent-fyke nets”, sampling with fyke nets was achieved as planned, but since only 34 individuals were caught, 16 additional individuals were provided by fishers to achieve the planned minimum number of units for the variables "Sex ratio", "Age" and "Other" - which refers to determination of infection of the swimbladder by the parasite nematode *Anguillicola crassus*. The additional 16 individuals were also sampled for Length and Weight.

In Body of water “Mondego” some of the planned numbers were not achieved:

- In sampling scheme identifier “PT-ELE-commercial fishing-logbooks”, the planned number (27 Fisher*Month) was not achieved since fishers did not accept logbooks because they do not direct their fishery to catch eels due to the extremely low expression of the eel fishery in this basin.

- In sampling scheme identifier “PT-ELE-fishery-independent-eel pass”, sampling planned for 1 day per week between May and July (12 Site*Week) could not be implemented due to a failure of the eel passage pump in March 2022 that was not fixed by the owners of the passage. To compensate for this technical failure, monitoring was conducted monthly to check if some individuals still used the passage despite the lack of water being pumped to attract them.

-In the sampling scheme identifier “PT-ELE-fishery-independent-fyke nets”, sampling activity with fyke nets was achieved as planned (160 Site*Net*Season) but sampling of individuals is dependent on catches and the planned number of units was not achieved for the variables “Sex ratio”, “Age” and “Other” - which refers to infection of the swimbladder by the parasite nematode *Anguillicola crassus*. Additional eels could not be obtained from fishers to complement this low achievement.

-In the sampling scheme identifier “PT-ELE-fishery-independent-stow nets”, sampling activity with fyke nets was achieved as planned (7 Site*Net*Month) but sampling of glass eel individuals is dependent on catches and the planned number of units was not achieved for the variables “Length”, “Weight” and “Other” - which refers to determination of pigmentation stage.

(max 250 words per species and area)

Text Box 2.4: Recreational Fisheries

Region “North-East Atlantic”

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.2 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used to collect data on marine and freshwater recreational catches. For freshwater diadromous species, use Table and Text Box 2.3.

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

In Portugal (Mainland), a pilot study was conducted in 2017-2018 (Pescardata project, funded by the General Directorate of Natural Resources, Safety and Maritime Services (DGRM), and coordinated by the Centre for Marine Sciences of the University of Algarve-CCMAR). The main goal was to determine the “Relative share of catches of recreational fisheries compared to commercial fisheries”.

In this study, DCF species were reported whenever their occurrence was observed. For all these species and for all recreational fishing modes, only catches of: seabass (*Dicentrarchus labrax*), spotted seabass (*Dicentrarchus punctatus*), white marlin (*Tetrapturus albidus*), blue shark (*Prionace glauca*) and skipjack tuna (*Katsuwonus pelamis*) were observed.

The methodology used (access point survey) for elasmobranchs and migratory species revealed some constraints namely because it was a one-year pilot project and because there were atypical weather conditions experienced during the course of the study. Regarding these species, only 9 blue sharks (*Prionace glauca*) (68.28 kg), 4 white marlins (*Tetrapturus albidus*) (52.86 kg) and 2 skipjack tuna (*Katsuwonus pelamis*) (1.70 kg) were recorded. For these species, the small number of specimens, didn't allow robust estimates.

The comparison between recreational fishing harvest (shore and boat angling combined) and commercial fishing landings (tonnes) in Mainland concluded that European seabass recreational catches represented 68% of the total caught by recreational and commercial fishers. Therefore, in WP 2022-2024 for Mainland efforts will be concentrated in a sampling scheme for seabass (*Dicentrarchus labrax*) due to the significant level of the harvested catches.

The sampling strategy for seabass (*Dicentrarchus labrax*) will follow the main tools used in the pilot study as described in the quality document (Annex 1.1).

The pilot study concluded that it would be useful that estimates of catch and effort would be corroborated with data from other studies and using different methodologies (such as new technologies, citizen science, Apps, etc), to correct identified bias.

Therefore, an interaction with anglers through a self-sampling platform based on a mobile application is intended to be tested. The proposed plan is to adapt one of the existing applications (e.g. “PescaemPortugal”). An incentive based on a best angler competition, as well as opportunistic prize draws, dependent on sponsor support, will entice the anglers to provide data in the form of quantities and photos of catches, to scale. From this we will be able to get position and effort data, as well as some basic biological characteristics. After an initial period, the most regular data suppliers will be approached in order to constitute a representative panel, which may provide stronger time-series data. Both data sets will constitute the basis for the SciObsOnShore database.

In relation to the Azores, this text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). For the Azores it is important to notice that due to the COVID-19 pandemic situation the on-site survey included in the Pilot Study 1.3 (of the Work-Plan 2020-2021) was postponed to 2022. Dependent of the results obtained from this survey other species could be included, coupled with the evaluation of the proper design for on-site methods to be included in the future of the WP 2022-2024. As final note the species of Table 4 of Commission Delegated Decision 2021/1167 that are not present in the Azores area (accordingly to Borges et al., 2010; Das and Afonso, 2017), were only indicated in the Table 2.4 for the area 9a.

References

Borges, P. A., Bried, J., Costa, A. C., Cunha, R. T. D., Gabriel, R., Gonçalves, V., ... & Boieiro, M. (2010). Description of the terrestrial and marine biodiversity of the Azores. A list of the terrestrial and marine biota from the Azores, 9-33.

Das, D., & Afonso, P. (2017). Review of the diversity, ecology, and conservation of elasmobranchs in the Azores region, mid-north Atlantic. *Frontiers in Marine Science*, 4, 354.

(max 900 words per region)

Deviations from the work plan

List the deviations (if any) in the achieved data collection, compared to what was planned in the work plan and explain the reasons for the deviations.

PT_ON_Sci_Shore

On the mainland, the Member State chose to use the results obtained by a project monitoring recreational fishing activity that was being carried out under the DQEM measures. In this study, data were collected through direct surveys (at the fishing event) and online surveys (invitation sent by SMS and response on dedicated website) with significant results (3127 direct surveys and 19209 online surveys). In the amended WP 2023-2024, table 2.4 was rectified according to the work done.

This decision was taken in view of principle 9 of the European Statistics Code of Practice: not to overburden the respondents. Although this decision implied a change of the commitments made by Portugal in the work plan, it was the most efficient use of resources.

AZ_OFF_EM_Touristic; AZ_OFF_EM_LicenseSyst; AZ_OFF_EM_Recreational

In Azores, the three off-site sampling schemes in the WP for 2022 did not presented any deviation.

The reference to an on-site survey in the WP 2022-2024 was a mistake that came from the former Pilot Study 1.3. However, as explain in the amendments to the WP 2022-2024 (presented on 15th October of 2022), in 2021 recreational fishing data collection was already implemented as a systematic data collection based on off-site sampling schemes and the reference to the postponement of the on-site survey (included in the Pilot Study 1.3) was deleted from the WP 2022-2024.

Action to avoid deviations

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 results.

PT_ON_Sci_Shore

In Mainland the deviation was well thought out and purposeful. No action to be taken.

AZ_OFF_EM_Touristic; AZ_OFF_EM_LicenseSyst; AZ_OFF_EM_Recreational

In Azores, the three sampling schemes in the WP for 2022 did not presented any deviation. However, some enforcement will continue to be applied to improve the engagement rate on the AZ_OFF_EM_Recreational sampling scheme and to improve the precision of the estimates.

(max 900 words per region)

Region “Other Regions”

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.2 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used to collect data on marine and freshwater recreational catches. For freshwater diadromous species, use Table and Text Box 2.3.

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

In Mainland, for the reasons indicated in previous text box, the low number of species observed and the scarce quantities recorded do not justify to consider the sampling for elasmobranchs and for high migratory species in Mainland as priority for the WP 2022-2024. It is also important to consider that no sampling for recreational catches was yet envisaged by the main end user (ICCAT) or by the Regional Coordination Group (RCG) for Large Pelagic stocks.

In relation to the Azores, this text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). As final note the species of Table 4 of Commission Delegated Decision 2021/1167 as some highly migratory ICCAT species that are not present in the area (accordingly to Borges et al., 2010; Das and Afonso, 2017), were not indicated in the Table 2.4.

References

Borges, P. A., Bried, J., Costa, A. C., Cunha, R. T. D., Gabriel, R., Gonçalves, V., ... & Boieiro, M. (2010). Description of the terrestrial and marine biodiversity of the Azores. A list of the terrestrial and marine biota from the Azores, 9-33.

Das, D., & Afonso, P. (2017). Review of the diversity, ecology, and conservation of elasmobranchs in the Azores region, mid-north Atlantic. *Frontiers in Marine Science*, 4, 354.

(max 900 words per region)

Deviations from the work plan

List the deviations (if any) in the achieved data collection, compared to what was planned in the work plan and explain the reasons for the deviations.

AZ_OFF_EM_Touristic; AZ_OFF_EM_LicenseSyst; AZ_OFF_EM_Recreational

In Azores, the three off-site sampling schemes in the WP for 2022 did not presented any deviation.

The reference to an on-site survey in the WP 2022-2024 was a mistake that came from the former Pilot Study 1.3. However, as explain in the amendments to the WP 2022-2024 (presented on 15th October of 2022), in 2021 recreational fishing data collection was already implemented as a systematic data collection based on off-site sampling schemes and the reference to the postponement of the on-site survey (included in the Pilot Study 1.3) was deleted from the WP 2022-2024.

Action to avoid deviations

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 results.

AZ_OFF_EM_Touristic; AZ_OFF_EM_LicenseSyst; AZ_OFF_EM_Recreational

In Azores, the three sampling schemes in the WP for 2022 did not presented any deviation. However, some enforcement will continue to be applied to improve the engagement rate on the AZ_OFF_EM_Recreational sampling scheme and to improve the precision of the estimates.

(max 900 words per region)

Text Box 2.5: Sampling plan description for biological data

Region “North-East Atlantic” / RFMO/RFO/IO “ICES”

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

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight additional information on sampling schemes and sampling frames that the Member State considers useful to understand the sampling design planned for the region and the implementation year(s).

Additional information on sampling schemes

All information in Table 2.5 and Annex 1.1.

Additional description of sampling frames

All information in Table 2.5 and Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Deviations from the work plan

List deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Mainland On Shore ICES

- Sampling frame identifiers: PTOS1 - FPO_MOL _ Main ports _ ICES 27.9.a, PTOS3 - GNS_GTR_DEF _ Main ports _ ICES 27.9.a

Achievement: Implementation of several of the sampling frame identifiers was achieved as planned

- Sampling frame identifiers: PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a, PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29

Achievement: Implementation of several of the sampling frame identifiers was lower than planned

PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a - Limitation in implementation occurred especially in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports.

PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29 - Limitation in implementation was mostly due to logistical issues especially concerning the travel of scientific observers to the ports.

- Sampling frame identifiers: PTOS5 - LLS_DEF _ Main ports _ ICES 27.9.a, PTOS7 - LLS_DWS _ Single main port _ ICES 27.9.a, PTOS13 - PS_SPF _ Main ports _ ICES 27.9.a, PTOS15 - TBB_MCD _ Main ports _ ICES 27.9.a

Achievement: Implementation of several of the sampling frame identifiers was higher than planned

At a given auction*day, while observers are waiting to sample several schemes, time is used to sample other schemes with no additional cost.

Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES

- Sampling frame identifier: PTOS17 - SF_SC_HOM _ Main ports _ ICES 27.9.a

Achievement: Implementation of the sampling scheme/frame identifier was lower than planned

Limitation in implementation was due to logistical issues especially concerning the travel of scientific observers to the ports, and also in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports.

Sampling scheme identifier: Mainland At Sea ICES

- Sampling frame identifier: PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame, PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame, PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame, PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame, PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame, PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame

Achievement: Implementation of the sampling scheme identifier was lower than planned

Sampling frame identifier “PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame” was sampled with lower PSUs than planned.

Sampling frame identifiers “P PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame”, “PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame” were sampled with much lower PSUs than planned.

Sampling frame identifiers “PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame”, “PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame,” “PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame” were not sampled.

Limitations in implementing the sampling scheme identifier "Mainland At Sea ICES" due to the delay in the hiring procedure of an external company to perform scientific observation at sea.

Sampling scheme identifier: Azores On Shore ICES

- Sampling frame identifier: AZM1 – LHP_FIF, AZM14 – LHP_CEP, AZM18 – PS_SPF, AZM27 – FPO

Achievement: Planned number of PSUs not achieved

There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in three main ports (SCF, MAD, VDP). The effect this had in sampling achieved is dependent of the port to which each of the sampling frames were planned: SCF, MAD and VDP for AZM1 – LHP_FIF and AZM27 – FPO; SCF and MAD for AZM14 – LHP_CEP and MAD for AZM18 – PS_SPF. Also, the severe weather and heavy sea conditions verified in the last quarter of the sampling year resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected. In addition, the new observers had a period of training and to know their way around first, including gaining captain's and crew members' trust.

- Sampling frame identifier: AZM45 - LLS_DWS_>12m

Achievement: Planned number of PSUs achieved

Sampled number of PSUs was achieved for sampling frame identifier AZM45 - LLS_DWS_>12m.

- Sampling frame identifier: AZM43 - LLS_DWS_<12m

Achievement: Planned number of PSUs has been exceeded

Additional sampling occurred of AZM43 - LLS_DWS_<12m with no extra costs, benefiting of the presence of observers in the landing ports (PDL and SMT) at a given auction*day, while observers are waiting to sample several schemes, time is used to sample other schemes with no additional cost.

Sampling scheme identifier: Azores At Sea ICES

- Sampling frame identifier: AZS4 – LHP_FIF, AZS16 – LHP_CEP, AZS20 – PS_SPF, AZS28 – FPO, AZS47 - LLS_DWS_<12m, AZS49 - LLS_DWS_>12m

Achievement: Planned number of PSUs not achieved

The main reasons for deviations in at-sea sampling frames are due to a delay in the administrative procedures concerning the public contracting of scientific observers. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports). The combination of these factors led to a shortage in the number of trips sampled from all the sampling frames with the exception made of 'Purse seiners for small pelagic fish: At-sea' (AZS20 – PS_SPF). This happens because blue jack mackerel is captured in shelter bays very close to shore, and particularly in São Miguel Island where two of the scientific observers are based, this condition allows to conduct this fishing operation even with bad weather forecast.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland On Shore ICES

- Sampling frame identifiers: PTOS1 - FPO_MOL _ Main ports _ ICES 27.9.a, PTOS3 - GNS_GTR_DEF _ Main ports _ ICES 27.9.a

No actions needed.

- Sampling frame identifiers: PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a, PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29

Efforts are being made to increase human resources allocated to sampling in fishing ports.

Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022.

- Sampling frame identifiers: PTOS5 - LLS_DEF _ Main ports _ ICES 27.9.a, PTOS7 - LLS_DWS _ Single main port _ ICES 27.9.a, PTOS13 - PS_SPF _ Main ports _ ICES 27.9.a, PTOS15 - TBB_MCD _ Main ports _ ICES 27.9.a

No additional cost. No actions needed.

Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES

- Sampling frame identifier: PTOS17 - SF_SC_HOM _ Main ports _ ICES 27.9.a

Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022. Efforts are being made to increase human resources allocated to sampling in fishing ports.

Sampling scheme identifier: Mainland At Sea ICES

- Sampling frame identifier: PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame, PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame, PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame, PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame, PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame, PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame

In 2023, efforts are being made to implement this sampling scheme identifier. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in June 2023.

Sampling scheme identifier: Azores On Shore ICES

- Sampling frame identifier: AZM1 – LHP_FIF, AZM14 – LHP_CEP, AZM18 – PS_SPF, AZM27 – FPO, AZM43 - LLS_DWS_<12m, AZM45 - LLS_DWS_>12m

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea ICES

- Sampling frame identifier: AZS4 – LHP_FIF, AZS16 – LHP_CEP, AZS20 – PS_SPF, AZS28 – FPO, AZS47 - LLS_DWS_<12m, AZS49 - LLS_DWS_>12m

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”

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

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight additional information on sampling schemes and sampling frames that the Member State considers useful to understand the sampling design planned for the region and the implementation year(s).

Additional information on sampling schemes

All information in Table 2.5 and Annex 1.1.

Additional description of sampling frames

All information in Table 2.5 and Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Deviations from the work plan

List deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Mainland At Sea ICES 1,2

- Sampling frame identifiers: PTAS39 - OTB_DEF _ ICES 27.1,27.2 _ in sampling frame, and PTAS41 - OTM_DEF _ ICES 27.1,27.2 _ in sampling frame

No deviations.

One PSU (=1 Fishing Trip) planned per year, which can either be of the Sampling frame identifier "PTAS39 - OTB_DEF _ ICES 27.1,27.2 _ in sampling frame" or of the "PTAS41 - OTM_DEF _ ICES 27.1,27.2 _ in sampling frame". In 2022 one single Fishing Trip was sampled but that operated with both metiers (OTB_DEF and OTM_DEF), so it refers to both Sampling frame identifiers.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland At Sea ICES 1,2

- Sampling frame identifiers: PTAS39 - OTB_DEF _ ICES 27.1,27.2 _ in sampling frame, and PTAS41 - OTM_DEF _ ICES 27.1,27.2 _ in sampling frame

No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “NAFO”

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

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight additional information on sampling schemes and sampling frames that the Member State considers useful to understand the sampling design planned for the region and the implementation year(s).

Additional information on sampling schemes

All information in Table 2.5 and Annex 1.1.

Additional description of sampling frames

All information in Table 2.5 and Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Deviations from the work plan

List deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Mainland At Sea NAFO

- Sampling frame identifier: PTAS43 - OTB_DEF _ NAFO _ in sampling frame

No deviations.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland At Sea NAFO

- Sampling frame identifier: PTAS43 - OTB_DEF _ NAFO _ in sampling frame

No actions needed.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “IOTC”

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

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight additional information on sampling schemes and sampling frames that the Member State considers useful to understand the sampling design planned for the region and the implementation year(s).

Additional information on sampling schemes

All information in Table 2.5 and Annex 1.1.

Additional description of sampling frames

All information in Table 2.5 and Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Deviations from the work plan

List deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Mainland At Sea IOTC

- Sampling frame identifier: PTAS37 - LLD_LPF _ IOTC _ in sampling frame

In 2022, it was not possible to implement this sampling scheme identifier due to the delay in the hiring procedure of an external company to perform scientific observation at sea. When the hiring procedure was finished, it was too late to implement this sampling scheme identifier.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland At Sea IOTC

- Sampling frame identifier: PTAS37 - LLD_LPF _ IOTC _ in sampling frame

In 2023, efforts are being made to implement this sampling scheme identifier. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in May 2023.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “ICCAT”

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

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight additional information on sampling schemes and sampling frames that the Member State considers useful to understand the sampling design planned for the region and the implementation year(s).

Additional information on sampling schemes

All information in Table 2.5 and Annex 1.1.

Additional description of sampling frames

All information in Table 2.5 and Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Deviations from the work plan

List deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

A minimum of 10% at sea observer coverage (in effort as number of sets) is required by ICCAT.

Sampling scheme identifier: Mainland At Sea ICCAT

- Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

In 2022, the implementation of this sampling scheme identifier was lower than planned due to the delay in the hiring procedure of an external company to perform scientific observation at sea and due to very high industry refusal rates.

Sampling scheme identifier: Mainland On Shore ICCAT

- Sampling frame identifier: PTOS19 - LLD_LPF _ Single main port _ ICCAT

In 2022, it was not possible to implement this sampling frame identifier due to the unexpected exit (in the first trimester of 2022) of the single scientific observer that performed this scientific observation on shore, which occurs at night in a specific port.

- Sampling frame identifier: PTOS21 - FPN_LPF _ Single main port _ ICCAT

In 2022, the implementation of this sampling frame identifier was lower than planned due to changes in the fishing strategy.

Sampling scheme identifier: Madeira On Shore ICCAT

- Sampling frame identifier: LPF1_M3

No deviations.

Sampling scheme identifier: Madeira At Sea ICCAT

- Sampling frame identifier: LPF2_M3

No sampling was carried out in 2022, because it was not possible to establish the on board observer programme due to failures in its implementation. The 29% reduction in fishing trips for this fishery in relation to the reference years also contributed to non-compliance with the number of PSUs planned.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 – LLD_LPF

Achievement: Planned number of PSUs not achieved

There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in two main ports (MAD, VDP). This situation affected the new observers in conducting sampling of vessels using pole and line targeting tuna species in both MAD and VDP ports, coupled with the necessary period of training and to know their way around first, including gaining captain's and crew members' trust, which overlap with exactly the month where 46% of landings were available for sampling. The closure of bigeye tuna fishery in July resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected.

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 - LLD_LPF

Achievement: Planned number of PSUs has been exceeded

Oversampling occurred for the sampling frame 'Drifting longliners targeting large pelagic fish: At-sea'. The main reason for this is that boarding of observers occurred in the remit of COSTA (Consolidating Sea Turtle Conservation in the Azores), project funded by the Marine Turtle Conservation Fund of the US Fish and Wildlife Service, the Archie Carr Center for Sea Turtle Research and the Regional Directorate for Fisheries in Azores. COSTA has, since 2015, two full time scientific observers.

No sampling occurred in the remit of DCF because of a delay in the administrative procedures related with the public contracting of scientific observers that resumed only in October, overlapping with quota regulation that determined fisheries closure. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports).

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland At Sea ICCAT

- Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

In 2023, efforts are being made to increase the achievement of the sampling scheme identifier "Mainland At Sea ICCAT", namely with the hiring of the services of an external company to implement a large percentage of the PSUs planned. The hiring process was signed in April 2023 and it is expected that implementation will start in May 2023.

Sampling scheme identifier: Mainland On Shore ICCAT

- Sampling frame identifier: PTOS19 - LLD_LPF _ Single main port _ ICCAT

In 2023, efforts are being made to restart the implementation of this sampling scheme identifier, through the reassignment of tasks among scientific observers.

- Sampling frame identifier: PTOS21 - FPN_LPF _ Single main port _ ICCAT

No actions needed.

Sampling scheme identifier: Madeira On Shore ICCAT

- Sampling frame identifier: LPF1_ M3

No actions needed.

Sampling scheme identifier: Madeira At Sea ICCAT

- Sampling frame identifier: LPF2_M3

The issue continues to receive attention and efforts are being made to ensure the implementation of the on board of scientific observer programme during 2023. Additionally, Madeira is exploring the possibility to implement a remote electronic monitoring system in some vessels of pole and line fisheries in the region.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 - LLD_LPF

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 - LLD_LPF

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “CECAF”

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

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight additional information on sampling schemes and sampling frames that the Member State considers useful to understand the sampling design planned for the region and the implementation year(s).

Additional information on sampling schemes

All information in Table 2.5 and Annex 1.1.

Additional description of sampling frames

All information in Table 2.5 and Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Deviations from the work plan

List deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Madeira On Shore CECAF

- Sampling frame identifiers: DWF1_ M1, SPF1_ M2

No deviations.

Sampling scheme identifier: Madeira At Sea CECAF

- Sampling frame identifier: SPF2_ M2

No deviations.

- Sampling frame identifier: DWF2_ M1

The number of planned PSU was not achieved because it was not possible to establish the on board observer programme due to failures in its implementation. Namely due to problems regarding the access of the scientific observers on board of the fishing vessels that, either due to logistical difficulties to take one extra person (safety and space regulations) or refuse to accept them by the shipmaster. The 31% reduction in fishing trips for this fishery in relation to the reference years also contributed to non-compliance with the number of PSUs planned.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Madeira On Shore CECAF

- Sampling frame identifiers: DWF1_ M1, SPF1_ M2

No actions needed.

Sampling scheme identifier: Madeira At Sea CECAF

- Sampling frame identifier: SPF2_ M2

No actions needed.

- Sampling frame identifier: DWF2_ M1

The issue continues to receive attention in 2023 and efforts are being made to ensure the implementation of the on board of scientific observer programme. Additionally, Madeira is exploring the possibility to implement a remote electronic monitoring system in some vessels of deep-water fisheries in the region.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Outermost regions” / RFMO/RFO/IO “NA”

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

This text box is complementary to information on the sampling schemes provided in the quality document (Annex 1.1). It serves to highlight additional information on sampling schemes and sampling frames that the Member State considers useful to understand the sampling design planned for the region and the implementation year(s).

Additional information on sampling schemes

All information in Table 2.5 and Annex 1.1.

Additional description of sampling frames

All information in Table 2.5 and Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Deviations from the work plan

List deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Madeira On Shore NA

- Sampling frame identifier: MOL1_ M4

Achievement: Planned number of PSUs achieved.

No deviations.

Sampling scheme identifier: Azores On Shore NA

- Sampling frame identifiers: AZM22 – GNS_MPD, AZM51 – GRAPP

Achievement: Planned number of PSUs not achieved

There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in three main ports (SCF, MAD, VDP). The effect this had in sampling achieved is dependent of the port to which each of the sampling frames were planned: SCF, MAD and VDP for AZM22 – GNS_MPD. Also, the severe weather and heavy sea conditions verified in the last quarter of the sampling year resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected. In addition, the new observers had a period of training and to know their way around first, including gaining captain's and crew members' trust.

Achievement: Planned number of PSUs achieved

Sampled number of PSUs was achieved for sampling frame identifier AZM51 – GRAPP. New observers started collecting data in June, precisely the month when closure period ends, and grappling of limpets starts.

Sampling scheme identifier: Azores At Sea NA

- Sampling frame identifier: AZS23 – GNS_MPD

Achievement: Planned number of PSUs not achieved

A shortage in the number of trips sampled occurred for at-sea sampling frame 'Set gillnetters for mixed pelagic and demersal: At-sea'. The main reason for this was due to a delay in the administrative procedures concerning the public contracting of scientific observers. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports). The combination of these factors led to a shortage in the number of trips sampled.

Actions to avoid deviations

Describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Madeira On Shore NA

- Sampling frame identifier: MOL1_ M4

No actions needed.

Sampling scheme identifier: Azores On Shore NA

- Sampling frame identifiers: AZM22 – GNS_MPD, AZM51 – GRAPP

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea NA

- Sampling frame identifier: AZS23 - GNS_MPD

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Text Box 2.6: Research surveys at sea

International Mackerel and Horse Mackerel Egg Survey (triennial) (MEGS)

1. Objectives of the survey:

Estimate the spawning stock biomass (SSB) of the southern stock horse-mackerel *Trachurus trachurus* (ICES 9a), using the Daily Egg Production Method (DEPM). Provide the data and the samples of mackerel *Scomber colias* for the purposes of the other partners' estimations for the species.

The survey is triennial planned for 2022, and the time period is January-February.

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

The MEGS survey involves vertical ichthyoplankton sampling on fixed stations with an (adapted) CalVET net. Simultaneously, the auxiliary CUFES system operates underway (between the CalVET stations), collecting plankton samples (3 m from the surface approximately) every 3 nm. The deployment of both samplers follows a predefined grid of fixed transects perpendicular to the coast and spaced 10 nm, covering the entire platform and shelf break (Fig. 2.6a). Decisions on the offshore limit of surveying (delimitation of the spawning area) are made, adaptively, depending on the egg results provided by the samples obtained by the CUFES system. After hauling, ichthyoplankton samples are preserved and subsequently processed and analysed in laboratory. Concurrently to the plankton sampling with the CalVET and the CUFES, environmental data (temperature and salinity and fluorescence) are recorded. These samples are then used in view of:

- Quantifying and identifying per developmental stage horse-mackerel eggs observed over the whole surveyed area;
- Delimiting and estimating the spawning area of horse-mackerel;
- Estimating daily egg production per unit area.

Simultaneously with the ichthyoplankton sampling, fishing hauls are conducted by pelagic or bottom trawling, opportunistically, following the information provided by the RV echo-sounder. Their number and spatial distribution aim at ensuring a good and homogeneous coverage of the survey area and an adequate representation of the population demography and distribution. Samples collected by the RV are often complemented with samples obtained from the commercial bottom trawler and purse-seiners fleets at the main landing harbours, during the period of the survey. Immediately after trawling, horse-mackerel fish samples are processed onboard the RV, individual biological information is recorded, and biological material is collected and preserved for subsequent histological processing in laboratory.

The data and material collected are used to estimate adult parameters (sex ratio, mean female weight, mean batch fecundity and spawning fraction) within the mature component of the population, and subsequently calculate horse-mackerel daily fecundity.

During the Portuguese survey, both ichthyoplankton and fish sampling also provide information on eggs and adults for mackerel, as a commitment to the WGMEGS (countries/institutes) partners, with the objective of obtaining an index of the SSB for the stocks of Atlantic mackerel (western and southern areas).

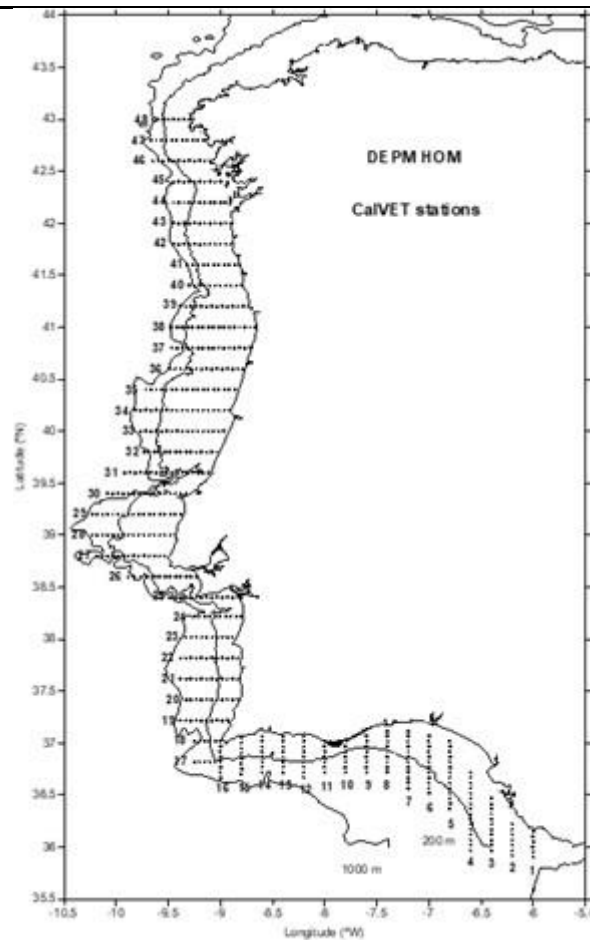


Figure 2.6a - International Mackerel and Horse Mackerel Egg Survey (MEGS) – Sampling grid.

Manual:

SISP 6 (2019) - MEGS V2.2 Sampling at Sea.

<https://www.ices.dk/sites/pub/Publication%20Reports/Forms/DispForm.aspx?ID=35369>

SISP 5 (2019) - WGMEGS V12 Manual for AEPM and DEPM fecundity.

[https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20\(SISP\)/SISP%205%20-%20WGMEGS%20Manual%20for%20AEPM%20and%20DEPM.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP%205%20-%20WGMEGS%20Manual%20for%20AEPM%20and%20DEPM.pdf)

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

International Mackerel and Horse Mackerel Egg Survey is coordinated internationally under the auspices of the ICES WGMEGS, but Portuguese survey alone covers the whole area of the horse-mackerel southern stock (ICES 9a).

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

Not applicable (NA)

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

https://ices-library.figshare.com/articles/report/Working_Group_on_Mackerel_and_Horse_Mackerel_Egg_Surveys_WGMEGS_outputs_from_2022_meeting_/22128536

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

- Indices resulting from the survey to estimate an index of the SSB for Atlantic horse-mackerel (*Trachurus trachurus*) southern stock;
- Spawning area;
- Daily egg production per unit area;
- Total Daily Egg Production
- Daily fecundity.

Data used for assessment purposes for Atlantic mackerel (*Scomber scombrus*):

- Eggs abundances per stage of development and fecundity provided, as a commitment to the WGMEGS partners, with the objective of obtaining an index of the SSB for the stocks of Atlantic mackerel
- Environmental characterization of ICES 9a area:
- Temperature distribution;
- Salinity distribution;
- Fluorescence distribution;
- TSF profiles.

7. Extended comments

In 2022, due to technical problems on the IPMA vessel (NI Mário Ruivo), it was not possible to conduct the MEGS survey on this vessel. The availability of the Spanish vessel (RV Vizconde de Eza) to carry out the MEGS was only 30 days, fewer days than planned (40). However, the planned sampling was carried out, with the exception of two transects closer to the Strait of Gibraltar that could not be covered due to significant adverse sea conditions.

Note: By mistake the *Scomber colias* data and samples harvest is mentioned, but should be written *Scomber scombrus*.

Sardine DEPM (triennial) (SDEPM)

1. Objectives of the survey:

Estimate the spawning stock biomass (SSB) of the Atlanto-Iberian sardine stock (ICES 9a plus 8c-Spain), using the Daily Egg Production Method (DEPM).

The survey is triennial planned for 2023, and the time period is January-February.

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

The SDEPM survey involves vertical ichthyoplankton sampling on fixed stations with a CalVET net. Simultaneously, the auxiliary CUFES system operates underway (between the CalVET stations), collecting surface plankton samples (3m below surface approximately) every 3 nm. The deployment of both samplers follows a predefined grid of fixed transects perpendicular to the coast and spaced 8 nm, covering the platform at least until the 200 m isobath (Fig. 1.2b). Decisions on the offshore limit of surveying (delimitation of the spawning area) are made, adaptively, depending on the egg results provided by the samples obtained by the CUFES system. After hauling, ichthyoplankton samples are preserved and subsequently processed and analysed in laboratory. Concurrently to the plankton sampling with the CalVET and the CUFES, environmental data (temperature and salinity and fluorescence) are recorded. The ichthyoplankton samples are then used in view of:

- Quantifying and identifying per developmental stage sardine eggs observed over the whole surveyed area;
- Delimiting and estimating the spawning area of sardine;
- Estimating sardine daily egg production.

Simultaneously with the ichthyoplankton sampling, fishing hauls are conducted by pelagic or bottom trawling, opportunistically, following the information provided by the RV echo-sounder. Their number and spatial distribution aim at ensuring a good and homogeneous coverage of the survey area and an adequate representation of the population demography and distribution. Samples collected by the RV are often complemented with samples obtained from the commercial purse-seine fleet at the main landing harbours, during the period of the survey. Immediately after trawling, sardine fish samples are processed onboard the RV, individual biological information is recorded, and biological material is collected and preserved for subsequent histological processing in laboratory.

The data and material collected are used to estimate adult parameters (sex ratio, mean female weight, mean batch fecundity and spawning fraction) within the mature component of the population, and subsequently calculate sardine daily fecundity.

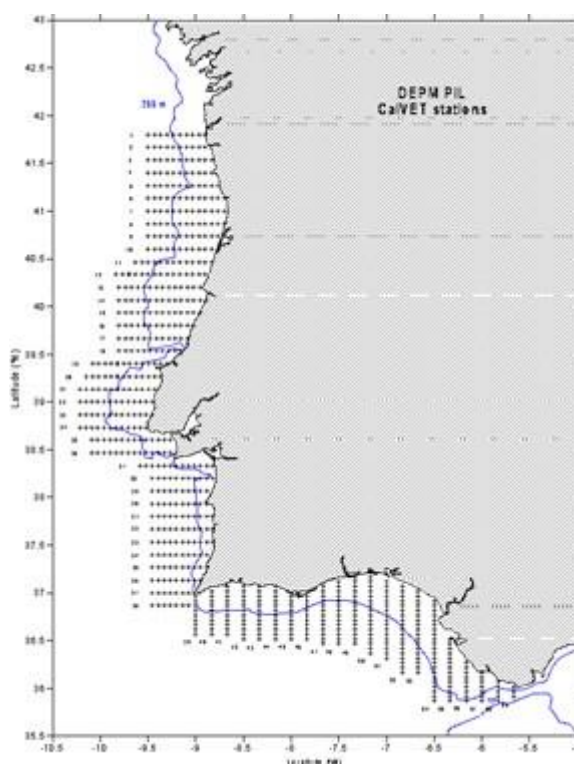


Figure 2.6b – Sardine DEPM (Triennial) (SDEPM)- Sampling grid.

Manual:

DEPM PIL survey is coordinated by ICES WGACEGG

(<http://www.ices.dk/community/groups/Pages/WGACEGG.aspx>).

ICES manual for DEPM survey (Series of ICES Survey Protocols) being finalized by ICES WGACEGG.

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

- Portugal (27.9a S and W)
- Spain (27.9aN and 8c)

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

Sardine DEPM survey is coordinated internationally under the auspices of the ICES WGACEGG; Portuguese survey carried out jointly with the Spanish survey (from the Instituto Español de Oceanografía, IEO) in order to cover the Atlanto-Iberian sardine stock area (9a, 8c).

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

The survey is triennial planned for 2023, did not occur in 2022.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators).

NA

7. Extended comments

NA

Sardine, Anchovy, Horse Mackerel Acoustic Survey – SAHMAS (PELAGO survey carried out by Portugal)

1. Objectives of the survey:

The spring acoustic survey SAHMAS includes the PELAGO survey carried by Portugal, the PELACUS survey carried out by Spain and the PELGAS survey carried out by France. The PELAGO survey is coordinated within ICES - WGACEGG (Working Group on Acoustics and Egg Surveys for small pelagic fish in NE Atlantic) which also coordinates another Spring acoustic survey in the same region - North-East Atlantic (WESPAS survey from Ireland). PELAGO takes place each year during spring covering the shelf waters of Portugal and the Cadiz Bay. The main objectives include monitoring the abundance distribution through echo-integration and the study of several biological parameters of the following species: Main target species: Sardine *Sardina pilchardus* and Anchovy *Engraulis encrasicolus*, Secondary target species: Horse mackerel *Trachurus trachurus*, Atlantic chub mackerel *Scomber colias*, Blue whiting *Micromesistius poutassou*, Mackerel *Scomber scombrus*, Mediterranean horse mackerel *Trachurus mediterraneus*, Blue jack mackerel *Trachurus picturatus*, Boarfish *Capros aper* and other small pelagic fish. This survey provides abundance at age estimates for the stock assessment of sardine and anchovy. Surveying also considers continuous observations of fish eggs and larvae along the acoustic transects (CUFES - Continuous Underway Fish Egg Sampler) and physical, chemical and biological characterization of the pelagic ecosystem. Data collected in this survey is an input for several MSFD descriptors.

In particular, census of marine birds and mammals are conducted during the survey trajectory by scientific observers external to IPMA and such data is an input for MSFD descriptor 1.

The survey is annual, and the time period is March-May.

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

Equipment: Simrad EK80 – frequencies 18, 38, 70, 120 and 200 KHz. Data storage and post-processing software: Movies+/Ecoview. Pelagic trawl. CUFES, continuous underway fish egg sampler, plus coupled temperature, salinity and fluorescence sensors. CTD and Bongo nets.

Sampling design: Parallel systematic grid, 8 nmi apart (west coast), 6 nmi in Algarve; in Cadiz, not parallel, around 8 nm in the middle of the radials. The acoustic survey is made only during day. During night, opportunistic hydrology/plankton/ecology sampling is carried out. CUFES sampling continuously acquired along the transects.

Abundance estimates: Survey area is divided into 4 zones: OCN (Caminha to Nazaré, subarea 9.a.c.n), OCS (Nazaré to Cape S. Vicente, 9.a.c.s), ALG (S. Vicente to V. Real Sto. António, 9.a.s.a) and CAD (V. Real to Cape Trafalgar 9.a.s.c). The acoustic energy is split by trawl proportion (in number) taking into account the species TS's, if direct energy extraction by species is not possible. There are post-stratifications in coherent (length composition, density) areas for each species. Abundance estimation is calculated in number of individuals, by length class, in each coherent area. The hauls are combined in this area, usually without weighting. Biomass estimation is calculated using weight/length relationship. Estimated abundance for the main target species by age groups is calculated using age/length key, extracted from the otoliths reading.

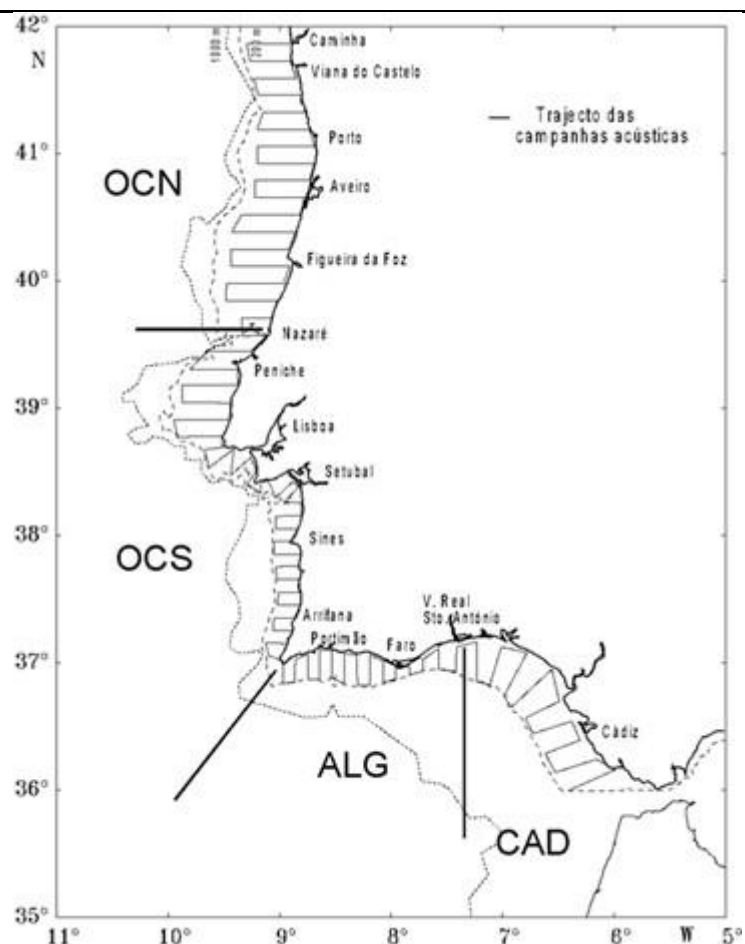


Figure 2.6c - Sardine, Anchovy, Horse Mackerel acoustic survey (SAHMAS) sampling grid.

Manual:

Doray, M., Boyra, G., and van der Kooij, J. (Eds.). 2021. ICES Survey Protocols – Manual for acoustic surveys coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG). 1st Edition. ICES Techniques in Marine Environmental Sciences Vol. 64. 100 pp.

<https://doi.org/10.17895/ices.pub.7462>

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

The PELAGO survey undertaken by Portugal is coordinated with the spring acoustic surveys from Spain (PELACUS) and France (PELGAS) and discussed and reported within ICES – WGACEGG. In 2022 the survey will be carried out with the Spanish RV “Miguel Oliver”.

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

Not applicable (NA).

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

ICES. 2021. Working Group on Acoustic and Egg Surveys for small pelagic fish in NE Atlantic (WGACEGG; outputs from 2020 meeting) ICES Scientific Reports. 3:76. 706 pp.

<https://doi.org/10.17895/ices.pub.8234>

Report with outputs from the 2022 meeting available soon in ICES website. Portuguese report available at <https://www.ipma.pt/export/sites/ipma/bin/docs/relatorios/pescas.mar/Campanha-PNAB-PELAGO22.pdf>

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

- Abundance and biomass estimates at age and distribution of sardine, anchovy and chub mackerel – used annually for stock assessment in ICES WGHANSA, and every 5 years for MSFD;
- Sardine and anchovy egg distribution and abundance, every 5 years for MSFD;
- Environmental and biological indicators (temperature, salinity and chlorophyll *a*), every 5 years for MSFD;
- Census of marine mammals and birds, every 5 years for MSFD.

7. Extended comments

In 2022, PELAGO was carried out in RV Miguel Oliver (1st leg) and RV Vizconde de Eza (2nd leg). The change of vessel was due to electric problems detected in Miguel Oliver during the first days of the survey that were not possible to solve in time to proceed the survey. The change of vessel was the best possible option. To overcome the reduced number of days available by the research vessel, a commercial purse-seiner was hired to perform fishing operations in coastal areas of difficult access to the RV. This also allowed to complete the survey planned sampling in a smaller number of days.

***Nephrops* Survey Offshore Portugal (FU 28-29) – NepS**

1. Objectives of the survey:

- To estimate the relative abundance of the target species, *Nephrops norvegicus* for use in the assessment and advice process, to study their geographical distribution in space and time and to collect data for the determination of biological parameters (sex-ratio, length-weight relationships, maturity);
- To monitor the distribution and relative abundance of the secondary crustacean species (deep water rose shrimp, *Parapeaneus longirostris*), accompanying fish and invertebrate species;
- To collect data for the determination of biological parameters for selected species;
- To collect data for biodiversity studies and information on marine litter distribution to comply with MSFD requirements;

- To collect hydrographical and environmental parameters (e.g. temperature, salinity, turbidity, oxygen, etc.);
- To collect sediment data to improve the definition of *Nephrops* habitat.
- Data collected in this survey is an input for several MSFD descriptors.

The survey is annual, and the time period is June-July.

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

In 2005, a sampling grid was designed to cover the main crustacean fishing grounds within the range of 200 – 750 m, replacing the previous stratification. The substrate in these grounds is characterized by muddy sediments composed by different percentages of silt and clay.

Each rectangle has 6.6 minutes of latitude x 5.5 minutes of longitude for the SW coast and vice-versa for the south coast, corresponding approx. to 33 nm². The abundance observed at a particular point within the rectangle will reflect the relative abundance of the resource at that geographical area and it is assigned to the centre of the rectangle. The stations may be grouped a posteriori in the strata used previously and the results compared with the former surveys.

The grid has been updated to include areas where fishing is known to occur and to exclude others where the target species do not occur or non trawlable areas, based on the definition of the fishing grounds through VMS fishing records. The new grid is composed by 80 rectangles in total, with 22 in FU 28 and 58 in FU29.

Since 2021, the survey is conducted with the R/V “Mário Ruivo”, a 76 m multipurpose oceanographic vessel fishing with a crustacean trawl with a 20 mm cod-end mesh size. The haul standard duration is 30 minutes. Hauls with duration lower than 15 minutes are not considered valid. Hauls are carried during daylight at a mean speed of 2.8-3.0 knots. Sensors are used to monitor the trawl net parameters (wings/doors spread, horizontal and vertical openings, depth).

Figure 2.6d shows the grid overlaying the fishing grounds, highlighting the changes.

In each station, whenever possible, the entire catch is sorted, with fish and shellfish species identified to the lowest taxonomic level possible. In the case of a large catch of one dominant species, or larger catches in which a small number of species are sufficiently abundant, these can be subsampled, appropriately, with the rest of the catch fully examined for ‘rare’ species and any exceptionally small or large individuals of the species that are subsampled.

Subsamples from selected species are taken to collect biological data for each individual (i.e. sex, length, weight, maturity stage). Hard structures (otoliths and illicia) are also collected for some fish species for growth studies.

At the end of each haul, a CTD station is performed to collect data on physical parameters.

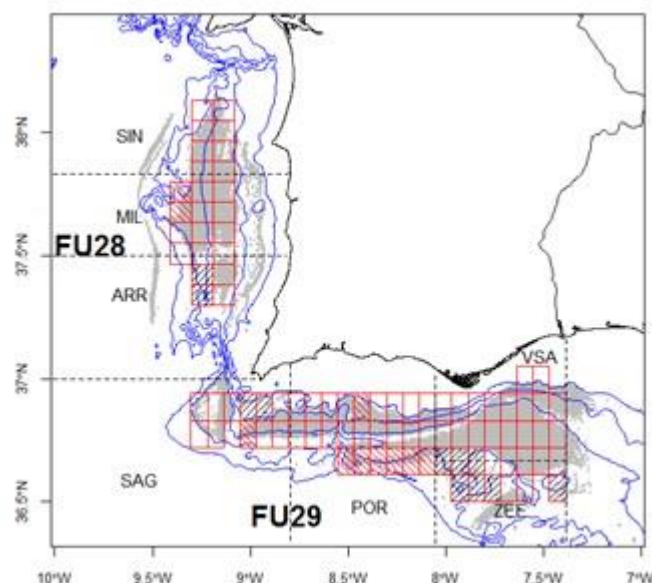


Figure 2.6d – Survey grid in FUs 28 and 29 overlaying the crustacean fishing grounds represented by VMS records (in grey). The red-dashed rectangles were added to the grid survey, the black-dashed rectangles were removed. The sectors used in the previous stratified design are delimited by dashed lines and labelled.

ICES. 2018. Annex 7: FUs 28 and 29 (Southwest and South Portugal) *Nephrops* offshore Survey (NepS). In Interim Report of the Working Group on *Nephrops* Surveys (WGNEPS). WGNEPS 2017 Report, 28 November – 1 December 2017. Heraklion, Greece. ICES CM 2017/SSGIEOM:19, 71 – 78.

Manual:

ICES manual for *Nephrops* surveys (Series of ICES Survey Protocols) being finalized by ICES WGNEPS

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

The Working Group on *Nephrops* Surveys (WGNEPS) coordinates all trawl and underwater television (UWTV) surveys from the NE Atlantic Region, as well as some UWTV surveys in the Mediterranean, each conducted individually by one research institute in a Functional Unit.

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

Not applicable (NA)

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

2023 report with 2022 results: ICES. 2023. Working Group on *Nephrops* Surveys (WGNEPS; outputs from 2022 meeting). ICES Scientific Reports. 5:26. 125 pp.
<https://doi.org/10.17895/ices.pub.22211161>

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators).

- Relative abundance, geographical distribution and data collection for the determination of biological parameters (sex-ratio, length-weight relationships, maturity, growth) of Norway lobster and deepwater rose shrimp for use in the assessment and advice process (ICES WGBIE and WGNPS);
- Relative abundance, geographical distribution and biological data collection of the accompanying demersal fish and invertebrate species (ICES Assessment working groups, WGCEPH, WGEF, WGWIDE)
- Biodiversity estimators for MSFD indicators;
- Information on marine litter distribution to comply with MSFD requirements

7. Extended comments

Oceanographic data and sediments samples were not collected due to the lack of appropriate winch (still to be installed).

Flemish Cap Groundfish Survey (FCGS)

1. Objectives of the survey:

The main objectives of the survey are the estimation of abundance and biomass index of the target species, as well as the knowledge of their population demographic structure and the oceanographic conditions on the Flemish Cap Bank (NAFO Division 3M). For this purpose, the following tasks were implemented:

- Detailed length distribution and biological sampling of the catch for each target species, recording length, weight, sex, and the collection of otoliths and gonads. For other species only length and length-weight sampling were performed;
- Observation of the oceanographic conditions on the Bank. The collection of oceanographic data (temperature and salinity) was carried out mainly through the CTD profiling; with a grid-pattern design, placing CTD stations separated 15 nautical miles, both in latitude and longitude, with the aim of covering the whole Bank;
- Feeding analysis of most abundant species, to be done every two years;
- Sampling of invertebrates, with special attention to corals and sponges, to allow identification of potentially vulnerable marine ecosystems.

Target species: Cod, roughhead grenadier, redfishes, American plaice, Greenland halibut and northern shrimp.

The survey is annual, and the time period is June-July.

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

Bottom trawl fishing hauls that last for 30 minutes and are distributed using a stratified random sampling scheme. The used trawling gear is the Lofoten (Vázquez *et al*, 2013).

Temperature and salinity profiles are taken with a CTD according to a predefined square grid.

The survey starts in the second half of June, and needs 35 days at sea.

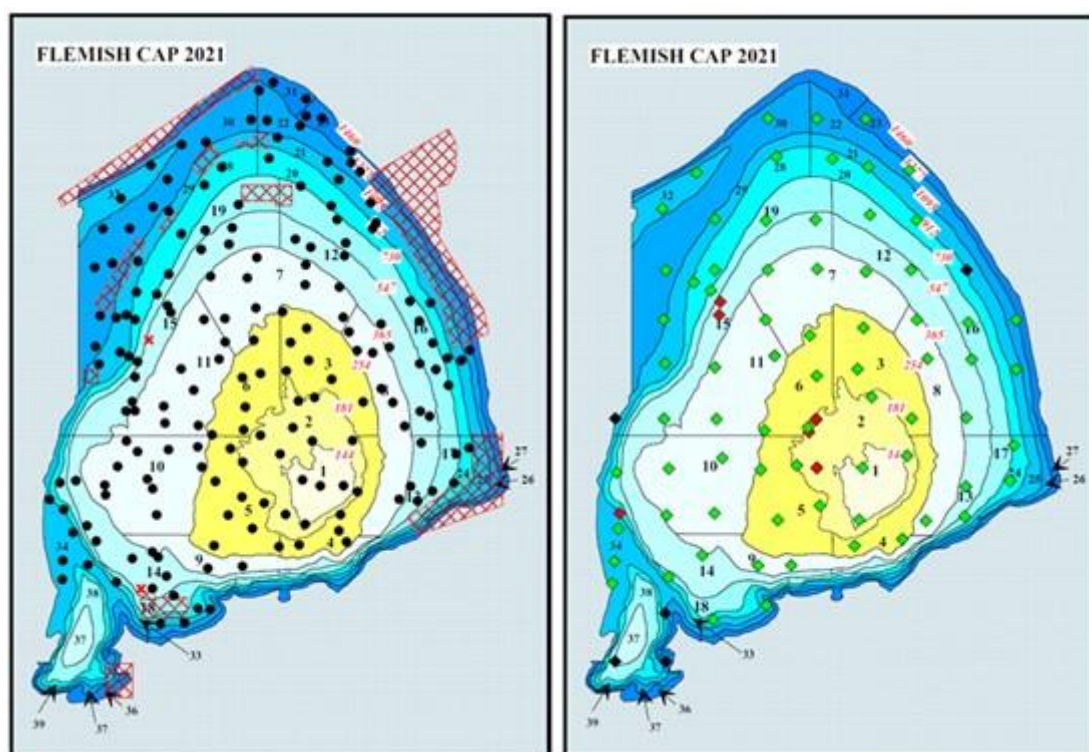


Figure 2.6e - Flemish Cap Groundfish Survey (FCGS) (RV Vizconde d'Eza): Sampling grid (right panel; black circles– valid sets and red crosses– null sets). Coral and sponge protection areas (red squares); CTDs grid (left panel: green – valid sets, red – null sets and black – sets not performed).

Manual:

Vázquez, A., J. Miguel Casas, R. Alpoim. 2014. Protocols of the EU bottom trawl survey of Flemish Cap. NAFO Scientific Council Studies, 46: 1–42. doi:10.2960/S.v46.m1
<https://www.nafo.int/Portals/0/PDFs/Studies/s46/S46-print.pdf>

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

Spain + Portugal; carried out with the Spanish RV “Vizconde de Eza”;

Portuguese-Spanish surveys in Flemish Cap - coordination meeting for the survey.

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

Spain contributes with the vessel, staff and samples analysis in laboratory and Portugal contributes with staff and samples analysis in laboratory.

There is no signed agreement about task sharing.

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

Summary Report of the FLEMISH CAP International Survey COORDINATION MEETING (FCCM) 2022 - <http://www.repositorio.ieo.es/e-ieo/handle/10508/16090>

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

- Survey results, including abundance indices and length distributions of the main commercial species and age distributions for cod, redfish, American plaice, roughhead grenadier and Greenland halibut, provide independent information about the stock status of commercial fisheries.
- The results are provided regularly to the NAFO Scientific Council, and they are also the base for many later studies.
- These results are used by the NAFO SC to make an assessment on the state of the resources, which is the key tool for the NAFO Fisheries Commission to take the appropriate management measures. Results are used in the following stocks:
- Cod (Div. 3M), American plaice (Div. 3M), Redfish (Div. 3M), Northern shrimp (Div. 3M), Greenland halibut (SA2 and Div. 3KLMNO), Roughhead grenadier (SA2+3).

7. Extended comments:

In 2022, the survey started on 6th July, but due to problems with the winches during the fourth haul, the vessel had to go to land and the survey was resumed on 18th July, the survey sets ended on August 18th. The delay in the dates didn't affect the results. Data and results were used, as usual, by the NAFO Scientific Council in stock assessments and ecosystem studies.

González-Troncoso, D., Rábade, S., Casas Sánchez, J. M., Garrido, I., Fabeiro, M., Román, E. and Alpoim, R., 2023. Results from Bottom Trawl Survey on Flemish Cap of June-July 2022. NAFO SCR Doc. 23/003, Serial No. N7381, 89pp.

Acoustic Survey for Juvenile Anchovy Sardine in the Western Iberia – IBERAS

1. Objectives of the survey:

The IBERAS survey is an autumn acoustic survey and its main objective is to get a recruitment index for sardine (*Sardina pilchardus*) and anchovy (*Engraulis encrasicolus*) in Atlantic waters of the Iberian Peninsula, aiming to improve the estimation of the strength of the recruitment of the Iberoatlantic sardine and the western component of the south anchovy population. The secondary

objective is the physical, chemical and biological characterisation of the pelagic ecosystem (hydrology, small pelagic fish, zooplankton, and megafauna). The target species of the survey are sardine and anchovy age 0 juveniles. Secondary species are Atlantic chub mackerel (*Scomber colias*) and horse mackerel (*Trachurus trachurus*). Other pelagic fish in catches are mackerel, (*Scomber scombrus*), boarfish (*Capros aper*), blue jack mackerel (*Trachurus picturatus*), bogue (*Boops boops*), and longspine snipe fish (*Macroramphosus* sp.).

The survey is annual, and the time period is September-November.

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

Equipment: Simrad EK80 – frequencies 18, 38, 70, 120 and 200 KHz. Data storage and post-processing software: Ecoview. Pelagic trawls (gloria HOD 352 and 63.5/51). CTD and Bongo nets.

Sampling design: On board the Spanish R/V “Ramón Margalef” in September/October in the main potential distribution area of sardine recruitment of the Iberoatlantic stock. The survey design consists in parallel tracks 6 nmi among transects apart (4 nmi in the middle part of 9aCN), with random start, and covering from 15 m depth up to 100 m.

Abundance estimates: Fish abundance is calculated with the 38 kHz frequency. Echograms from 18, 70, 120 and 200 kHz frequencies are used to visually discriminate between fish and other scatter producing objects, and to distinguish different fish species according to the frequency response. Pelagic trawls are used to identify the species and size classes responsible for the acoustic energy detected and to provide biological samples. Direct NASC allocation is done accounting for the shape of the schools and also the relative frequency response. Additionally, hauls considered as the best representation of the fish community for a specific area are used to allocate NASC of each EDSU within this area when no direct allocation is feasible. The spatial distribution for each species is analysed taking into account both the NASC values and the length frequency distributions (LFD) to provide homogeneous assessment polygons. Estimates for each species will be done on each stratum (polygon) using the arithmetic mean of the backscattering energy (NASC, sA) attributed to each fish species and the surface expressed in square nautical miles. Numbers were converted into biomass using the length weight relationships derived from the fish measured on board. Estimated abundance for the main target species by age groups is calculated using age/length key, extracted from the otoliths reading. For purposes of comparison, results are given by ICES Sub-Divisions (9aN, 9aCN, 9aCS).

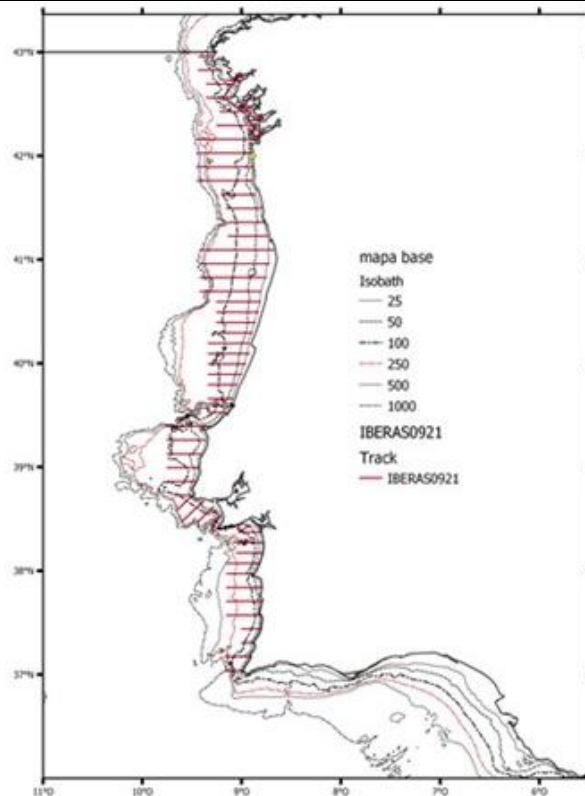


Figure 2.6f - IBERAS sampling grid

More details in Doray, M., Boyra, G., and van der Kooij, J. (Eds.). 2021. ICES Survey Protocols – Manual for acoustic surveys coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG). 1st Edition. ICES Techniques in Marine Environmental Sciences Vol. 64. 100 pp. <https://doi.org/10.17895/ices.pub.7462>

Carrera, P., Amorim, P., Moreno, A., Angélico, M.M., and Díaz-Conde, P., 2019. IBERAS 0919 Survey Report. <http://www.ipma.pt/export/sites/ipma/bin/docs/relatorios/pescas.mar/IBERAS0919-FINAL.pdf>

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

The IBERAS survey is undertaken by Spain on board the Spanish R/V “Ramón Margalef”. The scientific team on board includes members from Spain (IEO) and Portugal (IPMA). The survey is coordinated with the other autumn acoustic surveys and discussed and reported within ICES – WGACEGG.

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

The scientific crew on board includes members from Spain (IEO) and Portugal (IPMA, IP). Spain contributes with the research vessel and its costs associated with the survey, scientific crew and sample analysis in laboratory. Portugal contributes with scientific crew, hiring of purse seine vessels for performing several fishing hauls, sample analysis in laboratory and post processing of acoustic data.

There is not signed agreement about task sharing.

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

ICES. 2021. Working Group on Acoustic and Egg Surveys for small pelagic fish in NE Atlantic (WGACEGG; outputs from 2020 meeting) ICES Scientific Reports. 3:76. 706 pp.

<https://doi.org/10.17895/ices.pub.8234>

Report with outputs from the 2022 meeting available soon in ICES website.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

- Abundance and biomass estimates of age 0 sardine – used annually as a recruitment index for the stock assessment of southern Iberian sardine in ICES WGHANSA;
- Environmental and biological indicators (temperature, salinity and chlorophyll *a*), every 5 years for MSFD;
- Census of marine mammals and birds, every 5 years for MSFD.

7. Extended comments.

Due to shipyard delay, RV Angeles Alvariño was not available for the Spanish survey JUVENA. Therefore, RV Ramón Margalef undertook that survey and was not available for IBERAS. RV Angeles Alvariño was then assigned to perform IBERAS when available and because of that IBERAS was delayed. Due to additional unexpected problems in the diesel engines, the duration of the survey was shortened to 9 days including calibration. The surveyed area had to be reduced accordingly, to cover only the main recruitment area of sardine on the west Iberian coast from latitude 41.7 to 38.1°N. As the area 9aCN was fully covered, the data for the sardine stock assessment was not compromised.

Western IBTS 4th quarter (IBTS_Q4)

1. Objectives of the survey:

The Portuguese groundfish surveys have been conducted since 1979, routinely in autumn, with R/V "Noruega", until 2018 and onboard R/V "Mário Ruivo" from 2021 onwards. The main objectives are to estimate the abundance and distribution of the most important commercial species in the Portuguese trawl fishery: hake, horse mackerel and blue whiting. The recruitment indices of abundance and distribution for hake and horse mackerel are also evaluated. Data is collected for several other demersal fish species and invertebrates, focusing in providing the necessary information for stock assessment of commercial species. This survey is the most important source regarding information for biodiversity, biological parameters, food habits and distribution for a large number

of marine species on the Portuguese shelf and slope. Data collected in this survey is an input for several MSFD descriptors.

The survey is annual, and the time period is October-December.

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

The present sampling scheme was implemented in 2005, based on a systematic and stratified random sampling, to facilitate the use of geostatistical models and to overcome the difficulties in the estimation of the variance. It includes depths from 20 to 500 m with a mixed sampling scheme composed by 66 trawl positions distributed over a fixed grid with 5' per 5' miles, corresponding to trawl positions already done, and 30 random trawl positions, with tow duration of 30 minutes. At the end of each haul, a CTD station is performed to collect data on physical parameters.

The Portuguese surveys cover 9a area in Portuguese waters. The surveyed area extends from latitude 41°20' N to 36°30' N, and from 20 to 500 m depth. The surveys were carried out with the R/V “Mário Ruivo”, a multipurpose oceanographic vessel, with 76 m. The used fishing gear is a bottom trawl (type Norwegian Campell Trawl 1800/96 NCT) with a 20 mm codend mesh size. The mean vertical opening is 4.6 m and the mean horizontal opening between wings and doors is 15.1 m and 45.7 m, respectively. The polyvalent trawl doors are rectangular (954 mm x 535 mm) with an area of 1.75 m² and weighting 500 Kg.

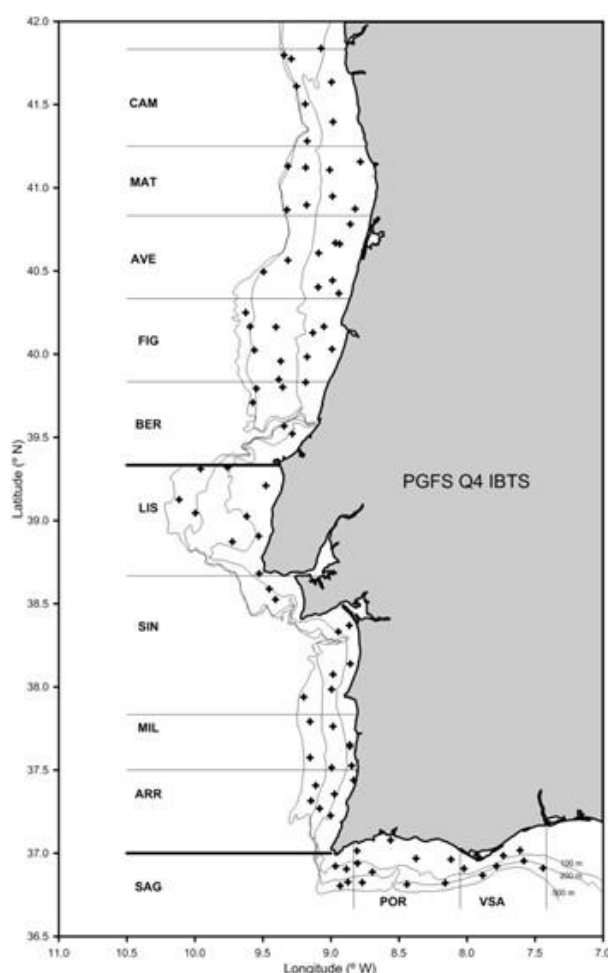


Figure 2.6g - Western IBTS 4th quarter (IBTS_Q4) sampling grid.

Manual:

PTGFS IBTSQ4 is coordinated by ICES IBTSWG.

ICES, 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. <http://doi.org/10.17895/ices.pub.3519>

Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

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

Not applicable (NA)

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

Not applicable (NA)

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

The 2022 report is with 2021 results, here: ICES (2022): International Bottom Trawl Survey Working Group (IBTSWG). ICES Scientific Reports. Report.

<https://doi.org/10.17895/ices.pub.20502828.v1>

2023 report with 2022 results in draft version.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

- Abundance and biomass estimates by length/age for European hake, horse mackerel, blue whiting, blue jack mackerel, mackerel, chub mackerel, bluemouth, Norway lobster, cephalopods and elasmobranchs (Assessment working groups, IBTSWG);
- Geographical distribution of demersal species (Assessment working groups, IBTSWG);
- Biodiversity estimators for MSFD indicators;
- Litter data for ICES database.

7. Extended comments

In 2022, a set of sequential bad weather events plus a break-down in the vessel, caused 3 interruptions ranging from 3 to 8 days which delayed the arrival time.

Azores Demersal Spring Survey - ARQDAÇO

1. Objectives of the survey:

The annual spring set longline survey (ARQDAÇO) - established in 1995 - targets demersal species up to 1200 m depth in the coastal shelves of all nine islands and some seamounts of the Azores archipelago. The main aim of the scientific survey is to monitor the abundances of the commercial demersal fishes in Azores, and to collect information on various biological and ecological aspects of the species, adding to the knowledge on regional environment and species. The applicability of the collected data is related to the support and advice to fishery policy makers, to contribute to the compilation of assessment reports by several working groups, such as the ICES (International Council for the Exploration of the Sea), or regional and national assessments under the framework of the Marine Strategy Framework Directive.

The survey is annual, and the time period is March-June.

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

The ARQDAÇO survey follow a standardized methodology, using a set longline gear similar to that mostly used by the local demersal fishing fleet. Each year, around 34 fishing hauls are deployed. Data collected during the set longline fish hauls include data on fishing effort and catches by species. On a subsample of fish, biological variables (length, weight, sex, gonadal maturation stage) and samples (otoliths for age estimation; portions of muscle for genetic analyses) are collected. During the surveys, a number of fishes (mainly *Pagellus bogaraveo* and *Helicolenus dactylopterus*) are tagged with traditional spaghetti tags and released. Tagging activity is expected to contribute to the knowledge of the species movements and connectivity among fishing grounds, abundance estimates, mortality and growth rates. Organisms collected as by-catch (such as corals, and other invertebrates) are preserved for further identification and studies.

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

Not applicable (NA)

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

Not applicable (NA)

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

Provide a link to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group, etc.). For surveys that are not internationally coordinated, refer to any status report (e.g. Cruise report).

ARQDAÇO cruise reports are available at the website from Okeanos R&D Center from the University of the Azores: <http://www.okeanos.uac.pt/cruzeiros/>.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

If presenting maps of the achieved research survey stations is necessary, provide them as an annex. Refer clearly to the annex and map numbers.

Main results of the survey are indices, abundance estimates, spatial and temporal distributions, catch per unit of effort (both in number and weight), relative population number, length and age composition (for all individuals and mature/immature individuals).

Data collected during the survey is assimilated on a routine base at international context during ICES working groups concerning stock assessment such as WGDEEP (Working Group on the Biology and Assessment of Deep-sea Fisheries Resources), WGEF (Working Group on Elasmobranch Fishes) and WGHANSA (Working Group on Southern Horse Mackerel, Anchovy and Sardine).

On a national context, data provide scientific advice to the Regional Government of the Azores, especially on fisheries management and conservation issues, as well as in regional and national assessments in the remit of the Marine Strategy Framework Directive and United Nations Sustainable Development Goals (Goal 14 – Conserve and sustainably use the oceans, seas and marine resources). Occurrences by species and sampling stations registered during surveys from 1996-2013 are part of a dataset available at EMODnet biology data portal that provides free access to data on temporal and spatial distribution of marine species.

7. Extended comments

Extended AR comments can be placed under this section.

The 2022 monitoring campaign for the abundance of demersal fish in the Azores archipelago did not go as planned. The failure to comply with the initial plan, which foresaw the sampling of the coast of the nine islands and the three emblematic fishing grounds of the Region, was due to a strike by the crew of the “N/I Arquipélago”. This unexpected situation lasted for the entire ship's time available for the annual demersal monitoring cruise. As planned, the new CTD equipment was acquired in 2022. All efforts were implemented to solve the strike situation and the 2023 survey is already in ongoing.

(max. 450 words per survey)

SECTION 3: FISHING ACTIVITY DATA

Text Box 3.1: Fishing activity variables data collection strategy

<p><i>General comment: This text box fulfils Article 5 (2)(c), Article 6 (3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 3.1 of the EU MAP Delegated Decision annex. It is intended to describe the method used to derive estimates on representative samples where data are not to be recorded under the Control Regulation (EC) No 1224/2009 or where data collected under Regulation (EC) No 1224/2009 are not at the right aggregation level for the intended scientific use. Text Box 3.1 should be filled only in case complementary data collection is planned</i></p>
<p><i>Explain the reasons for implementing complementary data collection.</i></p> <p><i>Information on the sampling schemes is available in the quality document (Annex 1.2). However, the Member State is invited to highlight additional information here on sampling schemes and sampling frames deemed necessary to understand the actual sampling design planned for the implementation year(s).</i></p> <p><i>(max. 900 words)</i></p>
<p>Deviations from the work plan <i>List the changes from the work plan (if any) and explain the reasons.</i></p> <p>Actions to avoid deviations <i>Briefly describe the actions that will be considered / have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.</i></p> <p><i>(max. 900 words)</i></p>

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

<p><i>General comment: This text box fulfils Article 5(2)(c), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 3.2 of the EU MAP Delegated Decision annex. It is intended to describe the methods and data sources used to estimate fishing capacity, effort and landings data.</i></p>
<p>Data to collect within the Pluriannual DCF include data on yellow eel fishery across the entire country (marine and freshwater jurisdiction), and data on glass eel fishery in the Minho River (marine jurisdiction).</p> <ul style="list-style-type: none"> ○ Entities involved: <ul style="list-style-type: none"> ▫ DGRM (General Directorate of Natural Resources, Maritime Safety and Services) - marine jurisdiction ▫ ICNF (Institute of Conservation of Nature and Forests) - freshwater jurisdiction ▫ Capitania do Porto de Caminha – Minho River ▫ Docapesca – Portos e Lotas, SA – auctions ○ Landings: <p>Data on yellow eel fishery is collected by DGRM for marine jurisdiction and by ICNF for freshwater jurisdiction. There is no other fishery in the country, except for the Minho River (EMU ES_Min)</p>

where the glass eel fishery is the only eel fishery allowed, and data is collected by “Capitania do Porto de Caminha”.

Landings from eel commercial fishery in the marine jurisdiction (estuaries and coastal lagoons) are collected from auction places distributed across the country. There is a daily record of landings and the corresponding boat that fished the resource.

In freshwater jurisdiction there are no auctions, but professional fishermen are required to report their catch monthly, for the entire fishing period. In all circumstances, these data correspond exclusively to yellow eel fishery as it is forbidden to fish silver eels and glass eels in the country, except in the Minho River, an international river.

Glass eel catches in the Minho, are also sold in auction, and therefore landings are reported per fishermen and day of fishing.

- Effort and capacity:

For yellow eel fishery in marine jurisdiction, several gears may be used, and some vessels are licenced to more than one type of fishing gear. Several data may be collected:

1. Number and type of licenced gear;
2. Number of licenced vessels;
3. Number of vessels with commercial landings;
4. Number of landing days

It is planned to distribute logbooks to fishermen (river and estuary fishermen) in the Mondego river (PT_Port) and in Santo André lagoon (PT_Port) to estimate fishing effort and catch per unit effort (CPUE). The success of this approach depends on the availability of the few fishermen who fish for eel and their willingness to cooperate.

Concerning the glass eel fishery, it is planned to distribute logbooks to fishermen in the Minho river (EMU ES_Min). As for the yellow eel fishery, a very artisanal fishery that has declined, particularly after the ban of the fishery from October to December, the situation is more complicated as it is scattered throughout the country.

- Temporal and spatial distribution and frequency with which data will be collected

The eel fishery is only allowed for the yellow eel, between January and September, and for the glass eel between November and February.

For the yellow eel fishery, the situation differs according to the jurisdiction:

- In marine jurisdiction, the eel fishery is allowed in eleven fishing areas in coastal waters (estuaries and coastal lagoons). Data on landings will be collected from auction places distributed across the country. There is a daily record of landings and the corresponding boat that fished the resource.

- In freshwater jurisdiction, the eel fishery is only allowed in nine Professional Fishing Areas (ZPPs), which include a small part of the river basins, and fishermen are obliged to have a special licence to fish for eels. It is mandatory to report their catch monthly, so this data will cover the entire territory, where the fishery is permitted.

For the glass eel fishery, there is a record of the number of licenses, landings that are sold in auctions, and number of days when the catch was obtained.

Deviations from the work plan

There are no deviations from the work plan. Logbooks had be implemented in the Minho.

Actions to avoid deviations

No action needed .

SECTION 4: IMPACT OF FISHERIES ON MARINE BIOLOGICAL RESOURCES

Text Box 4.2: Incidental catches of sensitive species

Region “North-East Atlantic” / RFMO/RFO/IO “ICES”

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

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

Additional information on planning the observation of incidental catches of sensitive species (if already filled in in Annex 1.1, please indicate where it can be found):

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

No.

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

Since the answer to previous question was “No”, the answer to this question is: This type of information is “Not available”.

- What methods are used to calculate the observation effort?

Scientific observer at sea:

Scientific observers record if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each haul in active gears (OTB_DEF, OTB_CRU, TBB_MCD, PS_SPF) and at the level of each gear segment in passive gears (FPO, GNS_GTR, GNS_MPD, LHP_CEP, LHP_FIF, LLS_DWS). In active gears, at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF, OTB_CRU, TBB_MCD) and during encircling and hauling of the net (PS_SPF). In passive metiers (FPO, GNS_GTR, GNS_MPD, LHP_CEP, LHP_FIF, LLS_DWS) at sea observation effort for PETS incidental bycatch is made during hauling of the gear (but individuals that slip out of the gear before being hauled into the vessel are generally not visible to the scientific observer and may not be accounted for – this is dependent on vessel characteristics).

Scientific observer on shore:

Scientific observers sample randomly selected boxes from all species/size categories present in each of the landing events. It is considered that whenever a box is sampled then on shore observation effort for PETS landings was also made, but this is distinct from at sea observation effort for PETS incidental bycatch.

- Does the sampling design and protocol follow the recommendations from relevant expert groups?

At sea sampling of PETS incidental bycatch follows recommendations from ICES WGBYC (<https://www.ices.dk/community/groups/Pages/WGBYC.aspx>).

At sea observation effort of PETS incidental bycatch is done by scientific observer, during the at-sea sampling scheme (see Table 2.5 for ICES 27.9.a), that is not exclusively dedicated to this sampling protocol, since the scientific observer is also dedicated to sampling all catch fractions (landings and discards) whether of target species or bycatch species, namely characterizing number and weight per species*fraction as well as biological parameters (e.g. Length, Age – Collection of structures, Weight, Sex, Maturity).

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

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

In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF, OTB_CRU, TBB_MCD) and during encircling and hauling of the net (PS_SPF).

See answer to the question above "What methods are used to calculate the observation effort?"

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

In passive metiers (FPO, GNS_GTR, GNS_MPD, LHP_CEP, LHP_FIF, LLS_DWS) at sea observation effort for PETS incidental bycatch is made during hauling of the gear (but individuals

that slip out of the gear before being hauled into the vessel are generally not visible to the scientific observer and hence may not be accounted for - this is dependent on vessel characteristics).

See answer to the above question "What methods are used to calculate the observation effort?"

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

First question - In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF, OTB_CRU, TBB_MCD) and during encircling and hauling of the net (PS_SPF).

Second question - The scientific observer records if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each haul in active gears (OTB_DEF, OTB_CRU, TBB_MCD, PS_SPF) and at the level of each gear segment in passive gears (FPO, GNS_GTR, GNS_MPD, LHP_CEP, LHP_FIF, LLS_DWS).

See answer to the question above "What methods are used to calculate the observation effort?"

Additional information on sampling schemes

See Annex 1.1.

Additional description on sampling frames

See Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Results

Provide additional information, if available, in this text box. For example, summary information on the number of individuals recorded as bycaught per species, gear group and monitoring method with information about the state of the animals (i.e. were they released alive, dead, or collected for sampling).

Sampling scheme identifier: Mainland On Shore ICES

- Sampling frame identifiers: PTOS1 - FPO_MOL _ Main ports _ ICES 27.9.a, PTOS3 - GNS_GTR_DEF _ Main ports _ ICES 27.9.a, PTOS5 - LLS_DEF _ Main ports _ ICES 27.9.a, PTOS7 - LLS_DWS _ Single main port _ ICES 27.9.a, PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a, PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29, PTOS13 - PS_SPF _ Main ports _ ICES 27.9.a, PTOS15 - TBB_MCD _ Main ports _ ICES 27.9.a

No PETS incidental bycatch occurred.

Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES

- Sampling frame identifier: PTOS17 - SF_SC_HOM _ Main ports _ ICES 27.9.a

No PETS incidental bycatch occurred.

This sampling scheme identifier does not include monitoring of PETS incidental bycatch.

Sampling scheme identifier: Mainland At Sea ICES

- Sampling frame identifier: PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame, PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame, PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame, PTAS29 - OTB_CRU _ ICES 28-29 _ in sampling frame, PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame, PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame

No PETS incidental bycatch occurred.

Sampling scheme identifier: Azores On Shore ICES

- Sampling frame identifier: AZM1 – LHP_FIF, AZM14 – LHP_CEP, AZM18 – PS_SPF, AZM27 – FPO, AZM43 - LLS_DWS_<12m, AZM45 - LLS_DWS_>12m

The following PETS incidental bycatch occurred:

. Bony fishes (sensu non-target species): *Lepidocybium flavobrunneum* (LEC), *Ruvettus pretiosus* (OIL), *Promethichthys prometheus* (PRP).

Sampling scheme identifier: Azores At Sea ICES

- Sampling frame identifier: AZS4 – LHP_FIF, AZS16 – LHP_CEP, AZS20 – PS_SPF, AZS28 – FPO, AZS47 - LLS_DWS_<12m, AZS49 - LLS_DWS_>12m

The following PETS incidental bycatch occurred:

. Bony fishes (sensu non-target species): Macrouridae (RTX), *Hoplostetys mediterraneus* (HPR), *Setarches guentheri* (SVG).

. Elasmobranchs (sensu non-target species; including prohibited catch/discards): *Dalatias licha* (SCK), *Deania calceus* (DCA), *Dipturus batis* (RJB), *Etmopterus pusillus* (ETP), *Etmopterus spinax* (ETX), *Galeorhinus galeus* (GAG), *Leucoraja fullonica* (RJF), *Raja brachyura* (RJH).

Deviations from the work plan

The Member State shall list the deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Mainland On Shore ICES

- Sampling frame identifiers: PTOS1 - FPO_MOL _ Main ports _ ICES 27.9.a, PTOS3 - GNS_GTR_DEF _ Main ports _ ICES 27.9.a

Achievement: Implementation of several of the sampling frame identifiers was achieved as planned

- Sampling frame identifiers: PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a, PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29

Achievement: Implementation of several of the sampling frame identifiers was lower than planned

PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a - Limitation in implementation occurred especially in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports.

PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29 - Limitation in implementation was mostly due to logistical issues especially concerning the travel of scientific observers to the ports.

- Sampling frame identifiers: PTOS5 - LLS_DEF _ Main ports _ ICES 27.9.a, PTOS7 - LLS_DWS _ Single main port _ ICES 27.9.a, PTOS13 - PS_SPF _ Main ports _ ICES 27.9.a, PTOS15 - TBB_MCD _ Main ports _ ICES 27.9.a

Achievement: Implementation of several of the sampling frame identifiers was higher than planned

At a given auction*day, while observers are waiting to sample several schemes, time is used to sample other schemes with no additional cost.

Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES

- Sampling frame identifier: PTOS17 - SF_SC_HOM _ Main ports _ ICES 27.9.a

Achievement: Implementation of the sampling scheme/frame identifier was lower than planned

Limitation in implementation was due to logistical issues especially concerning the travel of scientific observers to the ports, and also in two main ports with high number of planned PSUs (Figueira da Foz and Peniche) due to a decrease in human resources regionally allocated to sampling in those ports.

Sampling scheme identifier: Mainland At Sea ICES

- Sampling frame identifier: PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame, PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame, PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame, PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame, PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame, PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame

Achievement: Implementation of the sampling scheme identifier was lower than planned

Sampling frame identifier “PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame” was sampled with lower PSUs than planned.

Sampling frame identifiers “PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame”, “PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame” were sampled with much lower PSUs than planned.

Sampling frame identifiers “PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame”, “PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame,” “PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame” were not sampled.

Limitations in implementing the sampling scheme identifier "Mainland At Sea ICES" due to the delay in the hiring procedure of an external company to perform scientific observation at sea.

Sampling scheme identifier: Azores On Shore ICES

- Sampling frame identifier: AZM1 – LHP_FIF, AZM14 – LHP_CEP, AZM18 – PS_SPF, AZM27 – FPO

Achievement: Planned number of PSUs not achieved

There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in three main ports (SCF, MAD, VDP). The effect this had in sampling achieved is dependent of the port to which each of the sampling frames were planned: SCF, MAD and VDP for AZM1 – LHP_FIF and AZM27 – FPO; SCF and MAD for AZM14 – LHP_CEP and MAD for AZM18 – PS_SPF. Also, the severe weather and heavy sea conditions verified in the last quarter of the sampling year resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected. In addition, the new observers had a period of training and to know their way around first, including gaining captain's and crew members' trust.

- Sampling frame identifier: AZM45 - LLS_DWS_>12m

Achievement: Planned number of PSUs achieved

Sampled number of PSUs was achieved for sampling frame identifier AZM45 - LLS_DWS_>12m.

- Sampling frame identifier: AZM43 - LLS_DWS_<12m

Achievement: Planned number of PSUs has been exceeded

Additional sampling occurred of AZM43 - LLS_DWS_<12m with no extra costs, benefiting of the presence of observers in the landing ports (PDL and SMT) at a given auction*day, while observers are waiting to sample several schemes, time is used to sample other schemes with no additional cost.

Sampling scheme identifier: Azores At Sea ICES

- Sampling frame identifier: AZS4 – LHP_FIF, AZS16 – LHP_CEP, AZS20 – PS_SPF, AZS28 – FPO, AZS47 - LLS_DWS_<12m, AZS49 - LLS_DWS_>12m

Achievement: Planned number of PSUs not achieved

The main reasons for deviations in at-sea sampling frames are due to a delay in the administrative procedures concerning the public contracting of scientific observers. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports). The combination of these factors led to a shortage in the number of trips sampled from all the sampling frames with the exception made of 'Purse seiners for small pelagic fish: At-sea' (AZS20 – PS_SPF). This happens because blue jack

mackerel is captured in shelter bays very close to shore, and particularly in São Miguel Island where two of the scientific observers are based, this condition allows to conduct this fishing operation even with bad weather forecast.

Actions to avoid deviations

The Member State shall describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland On Shore ICES

- Sampling frame identifiers: PTOS1 - FPO_MOL _ Main ports _ ICES 27.9.a, PTOS3 - GNS_GTR_DEF _ Main ports _ ICES 27.9.a

No actions needed.

- Sampling frame identifiers: PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a, PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29

Efforts are being made to increase human resources allocated to sampling in fishing ports.

Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022.

- Sampling frame identifiers: PTOS5 - LLS_DEF _ Main ports _ ICES 27.9.a, PTOS7 - LLS_DWS _ Single main port _ ICES 27.9.a, PTOS13 - PS_SPF _ Main ports _ ICES 27.9.a, PTOS15 - TBB_MCD _ Main ports _ ICES 27.9.a

No additional cost. No actions needed.

Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES

- Sampling frame identifier: PTOS17 - SF_SC_HOM _ Main ports _ ICES 27.9.a

Logistical issues concerning the travel of scientific observers to the ports were solved in late 2022.
Efforts are being made to increase human resources allocated to sampling in fishing ports.

Sampling scheme identifier: Mainland At Sea ICES

- Sampling frame identifier: PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame, PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame, PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame, PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame, PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame, PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame

In 2023, efforts are being made to implement this sampling scheme identifier. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in June 2023.

Sampling scheme identifier: Azores On Shore ICES

- Sampling frame identifier: AZM1 – LHP_FIF, AZM14 – LHP_CEP, AZM18 – PS_SPF, AZM27 – FPO, AZM43 - LLS_DWS_<12m, AZM45 - LLS_DWS_>12m

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea ICES

- Sampling frame identifier: AZS4 – LHP_FIF, AZS16 – LHP_CEP, AZS20 – PS_SPF, AZS28 – FPO, AZS47 - LLS_DWS_<12m, AZS49 - LLS_DWS_>12m

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “North Sea and Eastern Arctic” / RFMO/RFO/IO “ICES”

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

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

Additional information on planning the observation of incidental catches of sensitive species (if already filled in in Annex 1.1, please indicate where it can be found):

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

No.

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

Since the answer to the previous question was “No”, the answer to this question is: This type of information is “Not available”.

- What methods are used to calculate the observation effort?

Scientific observer at sea:

Scientific observers record if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each haul in active gears (OTB_DEF, OTM_DEF). In active gears

at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF, OTM_DEF).

- Does the sampling design and protocol follow the recommendations from relevant expert groups?

At sea sampling of PETS incidental bycatch follows recommendations from ICES WGBYC (<https://www.ices.dk/community/groups/Pages/WGBYC.aspx>).

At sea observation effort of PETS incidental bycatch is done by scientific observer, during the at-sea sampling scheme (see Table 2.5 for ICES 27.1 and 27.2), that is not exclusively dedicated to this sampling protocol, since the scientific observer is also dedicated to sampling all catch fractions (landings and discards) whether of target species or bycatch species, namely characterizing number and weight per species*fraction as well as biological parameters (e.g. Length, Age – Collection of structures, Weight, Sex, Maturity).

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

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

In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF, OTM_DEF).

See answer to the above question "What methods are used to calculate the observation effort?".

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

Not applicable.

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

First question - In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF, OTM_DEF).

Second question - The scientific observer records if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each haul in active gears (OTB_DEF, OTM_DEF).

See answer to the question above "What methods are used to calculate the observation effort?".

Additional information on sampling schemes

See Annex 1.1.

Additional description on sampling frames

See Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Results

Provide additional information, if available, in this text box. For example, summary information on the number of individuals recorded as bycaught per species, gear group and monitoring method with information about the state of the animals (i.e. were they released alive, dead, or collected for sampling).

Sampling scheme identifier "Mainland At Sea ICES 1,2"

- Sampling frame identifiers: OTB_DEF _ ICES 27.1,27.2 _ in sampling frame, OTM_DEF _ ICES 27.1,27.2 _ in sampling frame

No PETS incidental bycatch occurred.

Deviations from the work plan

The Member State shall list the deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier "Mainland At Sea ICES 1,2"

- Sampling frame identifiers: OTB_DEF _ ICES 27.1,27.2 _ in sampling frame, OTM_DEF _ ICES 27.1,27.2 _ in sampling frame

The Work Plan refers that “In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF, OTM_DEF).” but it was not possible to implement this sampling protocol and the Work Plan text should be “In active gears at sea observation effort for PETS incidental bycatch is not made during hauling of the net into the vessel and after opening of the net inside the vessel, it is done during sorting of the catch (OTB_DEF, OTM_DEF).”.

Actions to avoid deviations

The Member State shall describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier "Mainland At Sea ICES 1,2"

- Sampling frame identifiers: OTB_DEF _ ICES 27.1,27.2 _ in sampling frame, OTM_DEF _ ICES 27.1,27.2 _ in sampling frame

In 2023, efforts will be made to implement observation effort for PETS incidental bycatch during hauling of the net into the vessel and after opening of the net inside the vessel, and not only during sorting of the catch.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “NAFO”

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

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

Additional information on planning the observation of incidental catches of sensitive species (if already filled in in Annex 1.1, please indicate where it can be found):

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

No.

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

Since the answer to the previous question was “No”, the answer to this question is: This type of information is “Not available”.

- What methods are used to calculate the observation effort?

Scientific observer at sea:

Scientific observers record if observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each haul in active gears (OTB_DEF). In active gears observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF).

- Does the sampling design and protocol follow the recommendations from relevant expert groups?

At sea sampling of PETS incidental bycatch follows recommendations from ICES WGBYC (<https://www.ices.dk/community/groups/Pages/WGBYC.aspx>).

At sea observation effort of PETS incidental bycatch is done by scientific observer, during the at-sea sampling scheme (see Table 2.5 for NAFO), that is not exclusively dedicated to this sampling protocol, since the scientific observer is also dedicated to sampling all catch fractions (landings and discards) whether of target species or bycatch species, namely characterizing number and weight per species*fraction as well as biological parameters (e.g. Length, Age – Collection of structures, Weight, Sex, Maturity).

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

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

In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF).

See answer to the question above "What methods are used to calculate the observation effort?"

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

Not applicable.

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

First question - In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF).

Second question - The scientific observer records if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each haul in active gears (OTB_DEF).

See answer to the question above "What methods are used to calculate the observation effort?"

Additional information on sampling schemes

See Annex 1.1.

Additional description on sampling frames

See Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Results

Provide additional information, if available, in this text box. For example, summary information on the number of individuals recorded as bycaught per species, gear group and monitoring method with information about the state of the animals (i.e. were they released alive, dead, or collected for sampling).

Sampling scheme identifier "Mainland At Sea NAFO"

- Sampling frame identifier: PTAS43 - OTB_DEF _ NAFO _ in sampling frame

The following PETS incidental bycatch occurred:

. Elasmobranchs - *Somniosus microcephalus* (GSK), *Lamna nasus* (POR), *Squalus acanthias* (DGS), *Cetorhinus maximus* (BSK).

Deviations from the work plan

The Member State shall list the deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier "Mainland At Sea NAFO"

- Sampling frame identifier: PTAS43 - OTB_DEF _ NAFO _ in sampling frame

The Work Plan refers that “In active gears at sea observation effort for PETS incidental bycatch is made during hauling of the net into the vessel and opening of the net inside the vessel (OTB_DEF).” but it was not possible to implement this sampling protocol and the Work Plan text should be “In active gears at sea observation effort for PETS incidental bycatch is not made during hauling of the net into the vessel and after opening of the net inside the vessel, it is done during sorting of the catch (OTB_DEF).”.

Actions to avoid deviations

The Member State shall describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier "Mainland At Sea NAFO"

- Sampling frame identifier: PTAS43 - OTB_DEF _ NAFO _ in sampling frame

In 2023, efforts will be made to implement observation effort for PETS incidental bycatch during hauling of the net into the vessel and after opening of the net inside the vessel, and not only during sorting of the catch.

(One text box of max. 1 000 words per region/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “IOTC”

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

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

Additional information on planning the observation of incidental catches of sensitive species (if already filled in in Annex 1.1, please indicate where it can be found):

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

No.

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

Since the answer to the previous question was “No”, the answer to this question is: This type of information is “Not available”.

- What methods are used to calculate the observation effort?

Scientific observer at sea:

Scientific observers record if observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each gear segment in passive gears (LLD_LPF). In passive gears (LLD_LPF) observation effort for PETS incidental bycatch is made during hauling of the gear (but individuals that slip out of the gear before being hauled into the vessel are generally not visible to the scientific observer).

- Does the sampling design and protocol follow the recommendations from relevant expert groups?

At sea sampling of PETS incidental bycatch follows recommendations from ICES WGBYC (<https://www.ices.dk/community/groups/Pages/WGBYC.aspx>).

At sea observation effort of PETS incidental bycatch is done by scientific observer, during the at-sea sampling scheme (see Table 2.5 for IOTC), that is not exclusively dedicated to this sampling protocol, since the scientific observer is also dedicated to sampling all catch fractions (landings and discards) whether of target species or bycatch species, namely characterizing number and weight per species*fraction as well as biological parameters (e.g. Length, Age – Collection of structures, Weight, Sex, Maturity).

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

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

Not applicable.

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

In passive metiers (LLD_LPF) at sea observation effort for PETS incidental bycatch is made during hauling of the gear (but individuals that slip out of the gear before being hauled into the vessel are generally not visible to the scientific observer).

See answer to the question above "What methods are used to calculate the observation effort?".

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

First question - Not applicable.

Second question - The scientific observer records if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each gear segment in passive gears (LLD_LPF).

See answer to the question above "What methods are used to calculate the observation effort?".

Additional information on sampling schemes

See Annex 1.1.

Additional description on sampling frames

See Annex 1.1.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Results

Provide additional information, if available, in this text box. For example, summary information on the number of individuals recorded as bycaught per species, gear group and monitoring method with information about the state of the animals (i.e. were they released alive, dead, or collected for sampling).

A minimum of 5% at sea observer coverage (in effort as number of sets) is required by IOTC.

Sampling scheme identifier "Mainland At Sea IOTC"

- Sampling frame identifier: PTAS37 - LLD_LPF _ IOTC _ in sampling frame

No sampling achieved in 2022.

Deviations from the work plan

The Member State shall list the deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier "Mainland At Sea IOTC"

- Sampling frame identifier: PTAS37 - LLD_LPF _ IOTC _ in sampling frame

In 2022, it was not possible to implement this sampling scheme identifier due to the delay in the hiring procedure of an external company to perform scientific observation at sea. When the hiring procedure was finished, it was too late to implement this sampling scheme identifier.

Actions to avoid deviations

The Member State shall describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland At Sea IOTC

- Sampling frame identifier: PTAS37 - LLD_LPF _ IOTC _ in sampling frame

In 2023, efforts are being made to implement this sampling scheme identifier. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in May 2023.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Other regions” / RFMO/RFO/IO “ICCAT”

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

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

Additional information on planning the observation of incidental catches of sensitive species (if already filled in in Annex 1.1, please indicate where it can be found):

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

No.

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

Since the answer to the previous question was “No”, the answer to this question is: This type of information is “Not available”.

- What methods are used to calculate the observation effort?

Scientific observer at sea (except for Madeira):

Scientific observers record if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each gear segment in passive gears (LLD_LPF). In passive gears (LLD_LPF) observation effort for PETS incidental bycatch is made during hauling of the gear (but individuals that slip out of the gear before being hauled into the vessel are generally not visible to the scientific observer and hence may not be accounted for - this is dependent on vessel characteristics).

In passive gear FPN_LPF there is no observation effort for PETS incidental bycatch.

Scientific observer on shore:

Scientific observers sample selected boxes of landing events. It is considered that whenever a box is sampled then on shore observation effort for PETS landings was also made, but this distinct from at sea observation effort for PETS incidental bycatch.

- Does the sampling design and protocol follow the recommendations from relevant expert groups?

At sea sampling of PETS incidental bycatch follows recommendations from ICES WGBYC (<https://www.ices.dk/community/groups/Pages/WGBYC.aspx>).

At sea observation effort of PETS incidental bycatch is done by scientific observer, during the at-sea sampling scheme (see Table 2.5 for ICCAT), that is not exclusively dedicated to this sampling protocol, since the scientific observer is also dedicated to sampling all catch fractions (landings and discards) whether of target species or bycatch species, namely characterizing number and weight per species*fraction as well as biological parameters (e.g. Length, Age – Collection of structures, Weight, Sex, Maturity).

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

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

Not applicable.

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

In passive metiers (LLD_LPF) at sea observation effort for PETS incidental bycatch is made during hauling of the gear (but individuals that slip out of the gear before being hauled into the vessel are generally not visible to the scientific observer and hence may not be accounted for - this is dependent on vessel characteristics).

In passive gear FPN_LPF there is no observation effort for PETS incidental bycatch.

See answer to the question above "What methods are used to calculate the observation effort?".

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

First question - Not applicable.

Second question - The scientific observer records if at sea observation effort for PETS incidental bycatch was made. This record (Yes/No) is at the level of each gear segment in passive gears (LLD_LPF).

In passive gear FPN_LPF there is no observation effort for PETS incidental bycatch.

See answer to the question above "What methods are used to calculate the observation effort?".

Additional information on sampling schemes

See Annex 1.1

Additional description on sampling frames

See Annex 1.1

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Results

Provide additional information, if available, in this text box. For example, summary information on the number of individuals recorded as bycaught per species, gear group and monitoring method with information about the state of the animals (i.e. were they released alive, dead, or collected for sampling).

A minimum of 10% at sea observer coverage (in effort as number of sets) is required by ICCAT.

Sampling scheme identifier: Mainland At Sea ICCAT

- Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

The following PETS incidental bycatch occurred:

- . Marine mammals - Mammalia not identified (MAM) (broke the line and swam away before being identified)
- . Birds: No incidental bycatch.
- . Reptiles: *Caretta caretta* (TTL), *Dermochelys coriacea* (DKK).
- . Bony fishes (sensu non-target species): *Alepisaurus ferox* (ALX), *Brama brama* (POA), *Coryphaena hippurus* (DOL), *Katsuwonus pelamis* (SKJ), *Lepidocybium flavobrunneum* (LEC), *Mola mola* (MOX), *Polyprius americanus* (WRF), *Ruvettus pretiosus* (OIL), *Taractichthys longipinnis* (TAL).
- . Elasmobranchs (sensu non-target species; including prohibited catch/discards): *Alopias superciliosus* (BTH), *Isurus paucus* (LMA), *Pteroplatytrygon violacea* (PLS), *Lamna nasus* (POR), *Sphyrna zygaena* (SPZ).

Sampling scheme identifier: Mainland On Shore ICCAT

- Sampling frame identifier: PTOS19 - LLD_LPF _ Single main port _ ICCAT

No sampling achieved in 2022.

- Sampling frame identifier: PTOS21 - FPN_LPF _ Single main port _ ICCAT

The following PETS incidental bycatch occurred:

- . Bony fishes (sensu non-target species) - *Coryphaena hippurus* (DOL), *Lepidocybium flavobrunneum* (LEC), *Ruvettus pretiosus* (OIL), *Taractichthys longipinnis* (TAL), *Polyprius americanus* (WRF).

Sampling scheme identifier: Madeira On Shore ICCAT

- Sampling frame identifier: LPF1_ M3

No species included in Table 1D of Commission Delegated Decision 2019/910 were observed as incidental bycatch by on shore scientific observers on fisheries using LHP_LPF.

Sampling scheme identifier: Madeira At Sea ICCAT

- Sampling frame identifier: LPF2_M3

No sampling achieved in 2022.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 - LLD_LPF

The following PETS incidental bycatch occurred:

. Bony fishes (sensu non-target species): *Coryphaena hippurus* (DOL), *Lepidocybium flavobrunneum* (LEC), *Ruvettus pretiosus* (OIL).

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 – LLD_LPF

The following PETS incidental bycatch occurred:

. Marine mammals – *Delphinus delphis* (DCO);

. Birds – *Morus bassanus* (MVB);

. Reptiles – *Caretta caretta* (TTL), *Dermochelys coriacea* (DKK);

. Bony fishes (sensu non-target species): *Alepisaurus ferox* (ALX), *Coryphaena hippurus* (DOL), *Lepidocybium flavobrunneum* (LEC), *Ruvettus pretiosus* (OIL).

. Elasmobranchs (sensu non-target species; including prohibited catch/discards): *Alopias superciliosus* (BTH), *Alopias vulpinus* (ALV), *Isurus oxyrinchus* (SMA), *Lamna nasus* (POR), *Sphyrna zygaena* (SPZ).

Deviations from the work plan

The Member State shall list the deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Mainland At Sea ICCAT

- Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

In 2022, the implementation of this sampling scheme identifier was lower than planned due to the delay in the hiring procedure of an external company to perform scientific observation at sea and due to very high industry refusal rates.

Sampling scheme identifier: Mainland On Shore ICCAT

- Sampling frame identifier: PTOS19 - LLD_LPF _ Single main port _ ICCAT

In 2022, it was not possible to implement this sampling frame identifier due to the unexpected exit (in the first trimester of 2022) of the single scientific observer that performed this scientific observation on shore, which occurs at night in a specific port.

- Sampling frame identifier: PTOS21 - FPN_LPF _ Single main port _ ICCAT

In 2022, the implementation of this sampling frame identifier was lower than planned due to changes in the fishing strategy.

Sampling scheme identifier: Madeira On Shore ICCAT

- Sampling frame identifier: LPF1_M3

No deviations

Sampling scheme identifier: Madeira At Sea ICCAT

- Sampling frame identifier: LPF2_M3

No sampling was carried out in 2022, because it was not possible to establish the on board observer programme due to failure in its implementation. The 29% reduction in fishing trips for this fishery in relation to the reference years also contributed to non-compliance with the number of PSUs planned.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 - LLD_LPF

There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in two main ports (MAD, VDP). This situation affected the new observers in conducting sampling of vessels using pole and line targeting tuna species in both MAD and VDP ports, coupled with the necessary period of training and to know their way around first, including gaining captain's and crew members' trust, which overlap with exactly the month where 46% of landings were available for sampling. The closure of bigeye tuna fishery in July resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected.

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 - LLD_LPF

Oversampling occurred for the sampling frame 'Drifting longliners targeting large pelagic fish: At-sea'. The main reason for this is that boarding of observers occurred in the remit of COSTA (Consolidating Sea Turtle Conservation in the Azores), project funded by the Marine Turtle Conservation Fund of the US Fish and Wildlife Service, the Archie Carr Center for Sea Turtle Research and the Regional Directorate for Fisheries in Azores. COSTA has, since 2015, two full time scientific observers.

No sampling occurred in the remit of DCF because of a delay in the administrative procedures related with the public contracting of scientific observers that resumed only in October, overlapping with quota regulation that determined fisheries closure. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports).

Actions to avoid deviations

The Member State shall describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Mainland At Sea ICCAT

- Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

In 2023, efforts are being made to increase the achievement of the sampling scheme identifier “Mainland At Sea ICCAT”, namely with the hiring of the services of an external company to implement a large percentage of the PSUs planned. The hiring process was signed in April 2023 and it is expected that implementation will start in May 2023.

Sampling scheme identifier: Mainland On Shore ICCAT

- Sampling frame identifier: PTOS19 - LLD_LPF _ Single main port _ ICCAT

In 2023, efforts are being made to restart the implementation of this sampling scheme identifier, through the reassignment of tasks among scientific observers.

- Sampling frame identifier: PTOS21 - FPN_LPF _ Single main port _ ICCAT

No actions needed.

Sampling scheme identifier: Madeira On Shore ICCAT

- Sampling frame identifier: LPF1_M3

No actions needed.

Sampling scheme identifier: Madeira At Sea ICCAT

- Sampling frame identifier: LPF2_M3

Efforts are being made to implement the onboard scientific observer programme during 2023 in order to achieve the number of PSU planned. Additionally, significant efforts are in place to assure the acquisition of information through surveys at the main fishing ports (Funchal and Caniçal) to mitigate the lack of information on the trips without scientific observers on board. Furthermore, Madeira is exploring the possibility to implement a remote electronic monitoring system in some vessels of pole and line fisheries in the region.

Sampling scheme identifier: Azores On Shore ICCAT

- Sampling frame identifiers: AZM24 - LHP_LPF_<12m, AZM25 - LHP_LPF_>12m, AZM29 - LLD_LPF

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea ICCAT

- Sampling frame identifier: AZS31 - LLD_LPF

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

Region “Other regions” / RFMO/RFO/IO “CECAF”

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

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

Additional information on planning the observation of incidental catches of sensitive species (if already filled in in Annex 1.1, please indicate where it can be found):

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

No.

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

This type of information is not available as there has not been an assessment of the relative risk of bycatch for the métiers LLD_DWF and PS_SPF in this region.

- What methods are used to calculate the observation effort?

PETS incidental bycatch records are mainly available for fisheries contemplated in sampling at sea in this region. For the PS_SPF métier, at sea observation of PETS incidental bycatch is conducted during the encircling and hauling of the net; and for this active métier, PETS observation effort is recorded at the level at each haul. For the LLD_DWS métier, at sea observation of PETS incidental bycatch is recorded during hauling of the gear; and for this passive gear, PETS observation effort is recorded at the level of each gear segment. However, individuals that escaped from the gear before being hauled into the vessel may not be visible to scientific observers and hence may not be accounted for - this is dependent on vessels characteristics.

Additionally, it is considered that whenever on shore sampling of a landing event is conducted, observation effort of PETS landings is also performed.

- Does the sampling design and protocol follow the recommendations from relevant expert groups?

At sea sampling of PETS incidental bycatch follows recommendations from ICES WGBYC (<https://www.ices.dk/community/groups/Pages/WGBYC.aspx>).

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

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

See answer to the question above "What methods are used to calculate the observation effort?".

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

Y.

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

See answer to the question above "What methods are used to calculate the observation effort?".

Additional information on sampling schemes

Additional description on sampling frames

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Results

Provide additional information, if available, in this text box. For example, summary information on the number of individuals recorded as bycaught per species, gear group and monitoring method with information about the state of the animals (i.e. were they released alive, dead, or collected for sampling).

Sampling scheme identifier: Madeira On Shore CECAF

- Sampling frame identifier: SPF1_ M2

No species included in Table 1D of Commission Delegated Decision 2019/910 were observed as incidental bycatch by on shore scientific observers on fisheries using PS_SPF.

- Sampling frame identifier: DWF1_ M1

Regarding the fishery LLD_DWF, 37 specimens of the species *Beryx splendens* (BYS) were observed as incidental bycatch.

Sampling scheme identifier: Madeira At Sea CECAF

- Sampling frame identifier: SPF2_ M2

In 2022, according to Table 1D of Commission Delegated Decision 2019/910 only one specimen of the species *Galeorhinus galeus* (GAG) was incidentally caught on the fishery using PS_SPF.

- Sampling frame identifier: DWF2_ M1

Regarding the fishery on LLD_DWF no sampling was carried during 2022.

Deviations from the work plan

The Member State shall list the deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Madeira On Shore CECAF

- Sampling frame identifiers: DWF1_ M1, SPF1_ M2

No deviations.

Sampling scheme identifier: Madeira At Sea CECAF

- Sampling frame identifier: SPF2_ M2

No deviations.

- Sampling frame identifier: DWF2_ M1

The establishment of the on board of scientific observer programme was not possible for the fishery using LLD_DWF due to failures in its implementation. Namely due to problems regarding the access of the scientific observers on board of the fishing vessels that, either do not present the necessary conditions to take one extra person or refuse to accept them.

Actions to avoid deviations

The Member State shall describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Madeira On Shore CECAF

- Sampling frame identifiers: DWF1_ M1, SPF1_ M2

No actions needed.

Sampling scheme identifier: Madeira At Sea CECAF

- Sampling frame identifier: SPF2_ M2

No actions needed.

- Sampling frame identifier: DWF2_ M1

Efforts are being made to implement the onboard scientific observer program during 2023 in order to achieve the number of PSU planned. Additionally, significant efforts are in place to assure the acquisition of information through surveys at the main fishing ports (Funchal and Caniçal) in order to mitigate the lack of information on the trips without scientific observers on board. Furthermore,

Madeira is exploring the possibility to implement a remote electronic monitoring system in some vessels of pole and line fisheries in the region.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Region “Outermost regions” / RFMO/RFO/IO “NA”

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

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

There is no PETS incidental bycatch in Patellidae manual harvesting. Not applicable to this Region / RFMO/RFO/IO.

Additional information on planning the observation of incidental catches of sensitive species (if already filled in in Annex 1.1, please indicate where it can be found):

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

Not applicable.

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

Not applicable.

- What methods are used to calculate the observation effort?

Not applicable.

- Does the sampling design and protocol follow the recommendations from relevant expert groups?

Not applicable.

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

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

Not applicable.

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

Not applicable.

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

Not applicable.

Additional information on sampling schemes

Additional description on sampling frames

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Results

Provide additional information, if available, in this text box. For example, summary information on the number of individuals recorded as bycaught per species, gear group and monitoring method with information about the state of the animals (i.e. were they released alive, dead, or collected for sampling).

Sampling scheme identifier: Madeira On Shore NA

- Sampling frame identifier: MOL1_ M4

There was no occurrence of bycatch once the harvesting of Patellidae is carried out by hand and as such only the target species (*Patella aspera* and *Patella ordinaria*) are harvested.

Sampling scheme identifier: Azores On Shore NA

- Sampling frame identifiers: AZM22 – GNS_MPD, AZM51 – GRAPP

No PETS incidental bycatch occurred.

Sampling scheme identifier: Azores At Sea NA

- Sampling frame identifier: AZS23 – GNS_MPD

No PETS incidental bycatch occurred.

Deviations from the work plan

The Member State shall list the deviations (if any) in the achieved data collection compared to what was planned in the work plan and explain the reasons for the deviations.

Sampling scheme identifier: Madeira On Shore NA

- Sampling frame identifier: MOL1_ M4

No deviations.

Sampling scheme identifier: Azores On Shore NA

- Sampling frame identifiers: AZM22 – GNS_MPD, AZM51 – GRAPP

Achievement: Planned number of PSUs not achieved

There was a delay in the administrative procedures concerning the public contracting of three new scientific observers on shore that resumed only in June and influenced planned sampling in three main ports (SCF, MAD, VDP). The effect this had in sampling achieved is dependent of the port to which each of the sampling frames were planned: SCF, MAD and VDP for AZM22 – GNS_MPD. Also, the severe weather and heavy sea conditions verified in the last quarter of the sampling year resulted in a decrease of the landings available for sampling and subsequent reduction in the number of samples collected. In addition, the new observers had a period of training and to know their way around first, including gaining captain's and crew members' trust.

Achievement: Planned number of PSUs achieved

Sampled number of PSUs was achieved for sampling frame identifier AZM51 – GRAPP. New observers started collecting data in June, precisely the month when closure period ends, and grappling of limpets starts.

Sampling scheme identifier: Azores At Sea NA

- Sampling frame identifier: AZS23 – GNS_MPD

Achievement: Planned number of PSUs not achieved

A shortage in the number of trips sampled occurred for at-sea sampling frame 'Set gillnetters for mixed pelagic and demersal: At-sea'. The main reason for this was due to a delay in the administrative procedures concerning the public contracting of scientific observers. It was not concluded until the end of the third quarter, when severe weather and heavy sea conditions did not allow the planned trips to be carried out. Besides this, it was planned to hire four scientific observers, but one of the tenders ended without any application. At the time being, no at-sea sampling is in place from Terceira Island fishing fleet (PVT and SMT ports). The combination of these factors led to a shortage in the number of trips sampled.

Actions to avoid deviations

The Member State shall describe the actions that will be considered/have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

Sampling scheme identifier: Madeira On Shore NA

- Sampling frame identifier: MOL1_ M4

No actions needed.

Sampling scheme identifier: Azores On Shore NA

- Sampling frame identifiers: AZM22 – GNS_MPD, AZM51 – GRAPP

No action will be considered once all three scientific observers on shore have contracted services signed with DRP/RAA for the WP2022-2024 period. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contracts.

Sampling scheme identifier: Azores At Sea NA

- Sampling frame identifier: AZS23 - GNS_MPD

The number of PSU planned considering four scientific observers at sea was rescheduled for the three contracted for the service. The deviations observed for 2022 sampling year are not expected to occur until the end of observers' contract once all three scientific observers at sea have contracted services signed with DRP/RAA for the WP2022-2024 period.

(One text box of max. 1 000 words per region/RFMO/RFO/IO)

Text Box 4.3: Fisheries impact on marine habitats

Region “North-East Atlantic” / RFMO/RFO/IO “ICES”

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

1. Aim of the study

Two of the research surveys of the National Work Plan operate with fishing gears that capture epibenthic macro invertebrate organisms, even though they do not target this assemblage directly. Namely, the survey “Western IBTS 4th quarter (including porcupine survey)” (IBTS_Q4) performs bottom otter trawl hauls that sample the demersal fish and macroinvertebrate assemblage of the continental shelf along the whole Portuguese coast (Portuguese part of ICES 27.9.a), while the survey “Nephrops Survey Offshore Portugal (FU 28-29)” (NepS) performs bottom otter trawl hauls that sample the benthic fish and epibenthic macroinvertebrate assemblage of the continental slope along the southwest and south coast of Portugal (area: ICES NEP FU 28-29). These research surveys

include areas with different degrees of fishing pressure, as well as different types of subtidal soft bottom habitats.

The National Work Plan also includes several sampling schemes for biological variables performed by “Scientific observer at sea” onboard of commercial fishing vessel trips. Among these sampling schemes, three concern fishing vessels operating in 27.9.a with gears that capture epibenthic macroinvertebrate organisms, even though they do not target this assemblage directly. Namely, bottom otter trawlers targeting demersal fish, bottom otter trawlers targeting crustaceans and multi-gear fleet using set nets and trammel nets.

The aim of this study is to take advantage of the sampling activities already conducted in the two surveys and the three commercial sampling schemes (scientific observer at sea in fishing trips) referred above, to allow obtaining data on occurrence of epibenthic macroinvertebrate species. This study aims to contribute for assessing fisheries impact on marine habitats and for assessing descriptor 6 (Sea floor integrity) of the Marine Strategy Framework Directive (MSFD).

2. Duration of the study

The study will be developed during 2022-2024.

3. Methodology and expected outcomes of the study

Data (number of individuals and weight per species of epibenthic macroinvertebrate) will be recorded at the spatio-temporal resolution level of the haul.

In the two research surveys referred, in each bottom otter trawl haul performed the whole catch is sorted by the scientific crew and available for analysis as planned for each survey (Work Plan Table 2.6, Text Box 2.6, Annex 1.1). Additionally for this study, epibenthic macroinvertebrate species will be preserved to allow for subsequent species identification in the laboratory by scientific experts external to DCF (provided that such species are not included in the set of species for which sampling of biological variables is planned in Work Plan Table 2.2). Limitations to species identification are not expected.

In the three sampling schemes for commercial fishing vessels trips, in each bottom trawl sampled or net haul sampled, scientific observers record species as planned for each sampling scheme (Work Plan Table 2.2, Table 2.5, Annex 1.1). Additionally for this study, epibenthic macroinvertebrate species that are not landed (i.e. that are discarded) will be preserved to allow for subsequent species identification in the laboratory by scientific experts external to DCF (provided that such species are not included in the set of species for which sampling of biological variables is planned in Work Plan Table 2.2). It will be necessary to evaluate any limitations to species identification that may arise from the procedures onboard. The landed fraction of the catch cannot be collected by the scientific observer therefore identification must be made in situ, but it is expected to comprises few commercial species; this needs to be evaluated. In turn, the discarded fraction is expected comprise more species but to be available for collection by the scientific observers to allow for subsequent species identification in the laboratory; this needs to be evaluated.

This study should provide spatio-temporal data on epibenthic macroinvertebrate species along the Portuguese continental shelf and slope, which should improve knowledge on the current state of this biological assemblage. Moreover, since data from research surveys includes areas with different degrees of fishing pressure as well as different habitat types, this knowledge should be relevant for

assessing fisheries impact on marine habitats and for assessing descriptor 6 (Sea floor integrity) of the Marine Strategy Framework Directive (MSFD).

(max. 900 words per study)

Brief description of the results (including deviations from the plan and justifications as to why if this was the case).

In what concerns research surveys at sea, the sampling plan on “Fisheries impact on marine habitats” was implemented as expected in 2022.

The research surveys (“Western IBTS 4th quarter (including porcupine survey)” - IBTS_Q4 and “Nephrops Survey Offshore Portugal (FU 28-29)” - NepS) that sample the demersal and benthic fish and macroinvertebrate assemblage of the continental shelf were carried out. In these surveys, samples of epibenthic macroinvertebrates were collected in all hauls. For the most frequent species, data was recorded to the species level, namely number of individuals per species per haul and weight per species per haul, and the correct identification was validated by a scientific expert external to the DCF. The remaining species in the samples were recorded at higher taxonomic levels and were sent to the laboratory for subsequent species identification by scientific experts external to the DCF. All data is recorded in the national database.

In 2022, in what concerns sampling schemes performed by “Scientific observer at sea” onboard of commercial fishing vessels, the sampling plan on “Fisheries impact on marine habitats” were not implemented as planned. This limitation included sampling scheme identifiers referring to métiers to that capture epibenthic macroinvertebrate organisms (bottom otter trawlers targeting demersal fish; bottom otter trawlers targeting crustaceans, and multi-gear fleet using set nets and trammel nets).

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

Limitations in implementing the sampling scheme identifier "Mainland At Sea ICES" were due to the delay in the hiring procedure of an external company to perform scientific observation at sea.

In 2023, efforts are being made to implement sampling schemes performed by “Scientific observer at sea” onboard of commercial fishing vessels. Hiring procedures of an external company to perform scientific observation at sea were finished in April 2023 and it is expected that implementation will start in June 2023.

Follow-up to the activities (what are the next steps, how the results will be used).

In 2023 sampling will continue, and in 2024 results will be evaluated.

(max. 900 words per study)

SECTION 5: ECONOMIC AND SOCIAL DATA IN FISHERIES

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

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

1. Description of clustering

According the National law, each register/value corresponding to less than 3 entities is considered as confidential. For that reason, clustering is necessary to report economic variables. The clustering scheme is based on the aggregation of segments similar to other segments.

Clustered Segments:

NGI - Vessels using Pots and/or traps 12-< 18 m*

This fleet segment is composed by the segments Vessels using Pots and/or traps 12-< 18 m and Vessels using Pots and/or traps 18-< 24 m, which has less than 3 vessels. These two fleet segments only differ on the length class. Despite the higher volume and value of landings of the 18-<24 m vessels it is observed that the most similar fleet segment in terms of fishing pattern is the segment with the same fishing technique from the class immediately below.

P3 - Vessels using Polyvalent “active” gears only 0-<10 m*

This fleet segment, operating in the Autonomous Region of Azores, is composed by the segments Vessels using Polyvalent “active” gears only 0-<10 m, Vessels using Polyvalent “active” gears only 10-<12 m and Vessels using Polyvalent “active” gears only 12-<18 m and Vessels using Pots and/or traps 18-< 24. Both 10-12 and 12-18 length classes have less than 3 vessels. These fleet segments differ on the length class and kept joined with the segment 0-<10 for constancy reasons.

P3 - Vessels using hooks 18-< 24 m*

This fleet segment, also operating in the Autonomous Region of Azores, is composed by the segment Vessels using hooks 24-< 40 m* and Vessels using hooks 24-< 40 m*. These fleet segments only differ on the length class. Despite the higher volume and value of landings of the larger vessels it is observed that the most similar fleet segment in terms of fishing pattern is the segment with the same fishing technique from the larger vessel length class which is the most representative in number of vessels.

2. Description of activity indicator

Not applicable.

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

Portugal follows the variable definition and RCG ECON advice as listed in ‘EUMAP Guidance’ document.

(max. 900 words)

Deviations from the work plan

NGI- It was necessary to create a new cluster Beam trawlers 10-< 12 m*, since a Beam trawlers 12<18 vessel was included in this segment because it underwent modifications. It is a new cluster that must be maintained over time.

P3- WP typing error: The Cluster used is Vessels using hooks 24-< 40 m* and not Vessels using hooks 18-< 24 m*. This fleet segment is composed by the segment Vessels using hooks 18-< 24 m* and Vessels using hooks 24-< 40 m*.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

(max. 900 words)

SECTION 6: ECONOMIC AND SOCIAL DATA IN AQUACULTURE

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

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

1. Description of the threshold application

The data source used to calculate the threshold is the production data from the EUROSTAT database. In 2019 the production (tonnes live weight) reported to EUROSTAT from EU member states is 1.114.378,9683 t and from Portugal also reported to EUROSRAT is 12.880,76 t, that corresponded to 1,15% with a threshold referred to point 7.c), of chapter II of the Commission Implementing Decision (EU) 2021/1168.

Although Portugal is in “C” thresholds, the MS does not apply the threshold as it collects information by questionnaire (census) of all variables, without additional financial charges.

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

Portugal follows the definitions as listed in the ‘EU MAP Guidance Document’ on the DCF website.

Deviations from the work plan

No deviations to report.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

(max. 900 words)

SECTION 7: ECONOMIC AND SOCIAL DATA IN FISH PROCESSING

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

General comment: This text box fulfils Article 5(2)(f), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 7 of the EU MAP Delegated Decision annex.

1. The Member State should provide justification for complementary data collection for fish processing in addition to Eurostat data.

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

Describe and justify any deviations from variable definitions as listed in 'EU MAP Guidance Document' in the DCF website.

(max. 900 words)

Deviations from the work plan

List the changes from work plan (if any) and explain the reasons.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid deviations in the future and when these actions are expected to produce an effect. If there are no deviations, then this section is not applicable.

(max. 900 words)

ANNEX 1.1 - QUALITY REPORT FOR BIOLOGICAL DATA SAMPLING SCHEME

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

Table 2.2 - Planning of sampling for biological variables

North-East Atlantic/Azores: SciObsOnShore * Biological parameters specific

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: SciObsOnShore * Biological parameters specific
Sampling scheme type: Biological parameters specific
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022 - 2024
Short description (max 100 words): Sampling scheme (Work Plan – Table 2.2) aiming to collect biological variables samples from commercial landings made by the Azorean registered vessels operating in the ICES 10.a.2. Commercial sampling for biological variables (weight, age, sex ratio and maturity) are carry out in Azores fisheries laboratories facilities and executed annually. The fish samples are bought from selected Azorean ports.
Description of the population
Population targeted: Biological variables (age, weight, sex and maturity) are collected from selected fish species included in the species listed in the Work Plan – Table 2.2, from fish landed at Azorean auctions (=ports) by Azorean vessels licensed to operate in ICES 10.a.2. <u>Primary Sampling Unit (PSU):</u> port x day Population sampled: Biological variables (age, weight, sex and maturity) of selected fish species included in the species listed in the Work Plan – Table 2.2. Stratification:

Spatially (ports) and temporally (annually). Fish from each sample are selected per length class (5 individuals/ 5 or 10cm length class, depending on the species).

AR comment: No deviations.

Sampling design and protocols

Sampling design description:

The sampling design is stratified multistage:

a) The Azorean fleet is stratified by fleet segment, métier and time. Sampling effort is established as number of trips expected to be sampled in each fleet (\approx métier) and allocated to auctions and quarters proportionally to last year's landings;

b) In every auction*visit_date, samplers attempt to sample a predefined number of vessel_sale_events. Each vessel_sale_event corresponds to the landings of one fishing trip. Samplers randomly select the vessel_sale_events from vessels present at the harbor;

c) In each vessel_sale_event, the samplers aim to sample boxes from every commercial species and commercial category. This way, a concurrent sampling scheme is applied, although sometimes the coverage of all species is not possible;

d) The commercial sampling for biological variables in laboratory (weight, age, sex ratio and maturity) is carry out by samplers that select a sample per length class (5 individuals/ 5 or 10cm length class, depending on the species). Biological sampling in the laboratory for biological variables follows standardized protocols;

e) A fishing effort related questionnaire is also performed to the shipmaster of the vessel selected for sampling;

f) Refusal rates are recorded.

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

Regional coordination: N

Link to sampling design documentation: Documentation on sampling design works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

Garcia, A., J.G. Pereira, Â. Canha, D. Reis and H. Diogo. 2015. Life history parameters of blue jack mackerel *Trachurus picturatus* (Teleostei: Carangidae) from Northeast Atlantic. *Journal of the Marine Biological Association of the United Kingdom*. Vol. 95 (2): 401–410.

Abecasis D., A.R. Costa, J.G. Pereira, M.R. Pinho. 2009. Age and growth of bluemouth, *Helicolenus dactylopterus* (Delaroche, 1809) from the Azores. *Fisheries Research*. Vol. 79, Issues 1–2:148-154.

Compliance with international recommendations: Y. Sampling design is in line with international recommendations, e.g., ICES WGCATCH and ICES WGBIOP.

Link to sampling protocol documentation: Documentation on sampling protocols works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

Garcia, A., J.G. Pereira, Â. Canha, D. Reis and H. Diogo. 2015. Life history parameters of blue jack mackerel *Trachurus picturatus* (Teleostei: Carangidae) from Northeast Atlantic. *Journal of the Marine Biological Association of the United Kingdom*. Vol. 95 (2): 401–410.

Abecasis D., A.R. Costa, J.G. Pereira, M.R. Pinho. 2009. Age and growth of bluemouth, *Helicolenus dactylopterus* (Delaroche, 1809) from the Azores. *Fisheries Research*. Vol. 79, Issues 1–2:148-154.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year:

A coordinator follows the sampling progress. The level of TACs achievement over the year is taking in consideration for the fish samples acquisition. Alternative fish samples acquisition by ARQDAÇO survey can be carry out in cases of exhausted TAC or for acquisition of fish samples below the minimum landing sizes.

AR comment: No deviations.

Data capture

Means of data capture: Biological variables data is collected with measuring boards, heavy-duty balance, precision balance, optical imaging equipment with digital cameras incorporated (including digital image analysis software).

Data capture documentation: Documentation on quality of data capture works as an internal document and is under constant improvement (e.g., age reading protocols, maturity stage guides, biological sampling protocols).

Garcia, A., J.G. Pereira, Â. Canha, D. Reis and H. Diogo. 2015. Life history parameters of blue jack mackerel *Trachurus picturatus* (Teleostei: Carangidae) from Northeast Atlantic. *Journal of the Marine Biological Association of the United Kingdom*. Vol. 95 (2): 401–410.

Abecasis D., A.R. Costa, J.G. Pereira, M.R. Pinho. 2009. Age and growth of bluemouth, *Helicolenus dactylopterus* (Delaroche, 1809) from the Azores. *Fisheries Research*. Vol. 79, Issues 1–2:148-154.

Quality checks documentation: Documentation on quality checks works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

AR comment: No deviations.

Data storage

National database: NA

International database: RDB/RDBES

Quality checks and data validation documentation: Routines will be implemented due to the development of a new data base.

AR comment: No deviations.

Sample storage

Storage description: Age structures are mostly kept in *eppendorfs*, which are placed in PCR tube storage racks, at the laboratory and for indefinite period. Access to samples is organised by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at <https://datacollection.jrc.ec.europa.eu/ars>.

Sample analysis: On-shore sampling follows recommendations from several ICES working groups: [WGCATCH \(ices.dk\)](#), [WGDEEP \(ices.dk\)](#), [WGEF \(ices.dk\)](#), [WGHANSA \(ices.dk\)](#).

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Outermost regions/Azores: SciObsOnShore * Biological parameters specific

MS: PRT
Region: Outermost regions
Sampling scheme identifier: SciObsOnShore * Biological parameters specific
Sampling scheme type: Biological parameters specific
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022 - 2024
Short description (max 100 words): Sampling scheme (Work Plan – Table 2.2) aiming to collect biological variables samples from commercial landings made by the Azorean registered vessels operating in the ICES 10.a.2. Commercial sampling for biological variables (weight, age, sex ratio and maturity) are carry out in Azores fisheries laboratories facilities and executed annually. Limpets and parrotfish samples are bought from selected Azorean ports.
Description of the population
Population targeted: Biological variables (age, weight, sex and maturity) are collected from selected limpets and parrotfish included in the species listed in the Work Plan – Table 2.2, from landings at Azorean auctions (=ports) in ICES 10.a.2. <u>Primary Sampling Unit (PSU):</u> port x day Population sampled: Biological variables (age, weight, sex and maturity) of selected limpets and parrotfish included in the species listed in the Work Plan – Table 2.2. Stratification: Spatially (ports) and temporally (annually). Limpets from each sample are selected per length class (5 individuals/1cm length class). Parrotfish from each sample are selected per length class (5 individuals/ 5cm length class).
AR comment: No deviations.
Sampling design description: Scientific observers on shore attempt to sample a predefined number of sale events (landing of one harvesting event for limpets) for every auction*visit date. This is conducted by random selection from hand collectors or vessels present at the harbour. Boxes of all species landed are sampled by conducting concurrent sampling scheme for all catch fractions landed. A fishing effort related questionnaire is also performed to the hand collector selected for sampling. On shore sampling schemes sample Landings (All fractions). <ol style="list-style-type: none"> Sampling effort is established as number of harvesting events or number of trips expected to be sampled and allocated to auctions and quarters proportionally to last year's landings; In every port*day, samplers attempt to sample a predefined number of limpets_sale event or vessel_sale_events regarding parrotfish. Each limpets_sale event or vessel_sale_event corresponds to the landings of one harvesting event or of one fishing trip. Samplers randomly select the limpets_sale event from hand collectors or vessel_sale_events from vessels present at the harbor;

- c. In each `limpets_sale` event or `vessel_sale_event`, the samplers aim to sample boxes from every commercial species and commercial category. This way, a concurrent sampling scheme is applied, although sometimes the coverage of all species is not possible;
- d. The commercial sampling for limpets biological variables (weight, sex ratio and maturity) is carried out by samplers that, within each commercial category randomly select boxes to be sampled aiming for a minimum number of 50 limpets; commercial sampling of parrotfish biological variable (age, weight, sex ratio and maturity) is carry out by samplers that select a sample per length class (5 individuals/5cm length class). Biological sampling in the laboratory for biological variables follows standardized protocols;
- e. A fishing effort related questionnaire is also performed to the hand collector, or shipmaster of the vessel, selected for sampling;
- f. Refusal rates are recorded.

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

Regional coordination: Not applicable.

Link to sampling design documentation: Documentation on sampling design works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

Compliance with international recommendations: Not applicable.

Link to sampling protocol documentation: Documentation on sampling protocol works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year: Sampling progress is monthly monitored.

AR comment: No deviations.

Data capture

Means of data capture: Depending on the species, lengths are collected using electronic/analogic calipers or measuring scales. Scales are used for weight data. Fishing effort questionnaires are conducted in person or by phone.

Data capture documentation: Documentation on data capture works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

Quality checks documentation: Documentation on quality checks works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

AR comment: No deviations.

Data storage
<p>National database: NA</p> <p>International database: NA</p> <p>Quality checks and data validation documentation: Quality checks and validation procedures implemented are: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered.</p>
AR comment: No deviations.
Sample storage
<p>Storage description: Age structures are mostly kept in <i>ependorfs</i>, which are placed in PCR tube storage racks, at the laboratory and for indefinite period. Access to samples is organised by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at https://datacollection.jrc.ec.europa.eu/ars.</p> <p>Sample analysis: On-shore sampling follows recommendations from several ICES working groups: WGCATCH (ices.dk), WGDEEP (ices.dk), WGEF (ices.dk), WGHANSA (ices.dk).</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.</p> <p>Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.</p>
AR comment: No deviations.

Other regions/Azores: SciObsOnShore * Biological parameters specific

MS: PRT
Region: Other regions
Sampling scheme identifier: SciObsOnShore * Biological parameters specific
Sampling scheme type: Biological parameters specific
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022 - 2024
Short description (max 100 words): Sampling scheme (Work Plan – Table 2.2) aiming to collect biological variables samples from commercial landings made by the Azorean registered vessels operating in the ICES 10.a.2. Commercial sampling for biological variables (weight, age, sex ratio and maturity) are carry out in Azores fisheries laboratories facilities and executed annually. The fish samples are bought from selected Azorean ports.
Description of the population
Population targeted: Biological variables (age, weight, sex and maturity) are collected from selected fish species included in the species listed in the Work Plan – Table 2.2, from fish landed at Azorean auctions (=ports) by Azorean vessels licensed to operate in ICES 10.a.2. <u>Primary Sampling Unit (PSU):</u> port x day
Population sampled: Biological variables (age, weight, sex and maturity) of selected fish species included in the species listed in the Work Plan – Table 2.2.
Stratification: Spatially (ports) and temporally (annually). Fish from each sample are selected per length class (5 individuals/ 5 or 10cm length class, depending on the species).
AR comment: No deviations.
Sampling design and protocols
Sampling design description: The sampling design is stratified multistage: a) The Azorean fleet is stratified by fleet segment, métier and time. Sampling effort is established as number of trips expected to be sampled in each fleet (\approx métier) and allocated to auctions and quarters proportionally to last year's landings;

- b) In every auction*visit_date, samplers attempt to sample a predefined number of vessel_sale_events. Each vessel_sale_event corresponds to the landings of one fishing trip. Samplers randomly select the vessel_sale_events from vessels present at the harbor;
- c) In each vessel_sale_event, the samplers aim to sample boxes from every commercial species and commercial category. This way, concurrent sampling scheme is applied, although sometimes the coverage of all species is not possible;
- d) Within each commercial category samplers randomly select boxes to be sampled (*in situ* for lengths) aiming for a minimum number of 50 fishes. The commercial sampling for biological variables in laboratory (weight, age, sex ratio and maturity) is carry out by samplers that select a sample per length class (5 individuals/ 5 or 10cm length class, depending on the species). Biological sampling in laboratory for biological variables follows standardized protocols;
- e) A fishing effort related questionnaire is also performed to the shipmaster of the vessel selected for sampling;
- f) Refusal rates are recorded.

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

Regional coordination: Not applicable.

Link to sampling design documentation: <https://www.iccat.int/en/iccatmanual.html>

Compliance with international recommendations: Y. Sampling design is in line with international recommendations (e.g., ICCAT Manual).

Link to sampling protocol documentation: <https://www.iccat.int/en/iccatmanual.html>

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year: Sampling progress is monthly monitored.

AR comment: No deviations.

Data capture
<p>Means of data capture: Biological variables data is collected with measuring boards, heavy-duty balance, precision balance, optical imaging equipment with digital cameras incorporated (including digital image analysis software).</p> <p>Data capture documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Quality checks documentation: https://www.iccat.int/en/iccatmanual.html - Data Base and Manual</p>
AR comment: No deviations.
Data storage
<p>National database: NA</p> <p>International database: https://www.iccat.int/en/iccatmanual.html - Data Base</p> <p>Quality checks and data validation documentation: https://www.iccat.int/en/iccatmanual.html - Data Base and Manual.</p>
AR comment: No deviations.
Sample storage
<p>Storage description: Age structures are mostly kept in <i>eppendorfs</i>, which are placed in PCR tube storage racks, at the laboratory and for indefinite period. Access to samples is organised by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at https://datacollection.jrc.ec.europa.eu/ars.</p> <p>Sample analysis: https://www.iccat.int/en/iccatmanual.html</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): Y. https://www.iccat.int/en/submitSTAT.html (Submitting Stat Data).</p> <p>Editing and imputation methods: Y. https://www.iccat.int/en/iccatmanual.html</p> <p>Quality document associated to a dataset: https://www.iccat.int/en/submitSTAT.html</p> <p>Validation of the final dataset: Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT.</p>
AR comment: No deviations.

North-East Atlantic/Mainland: SciObsOnShore * Biological parameters specific

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: SciObsOnShore * Biological parameters specific
Sampling scheme type: Biological parameters specific
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.2) aiming at sampling biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) landed at mainland ports by Portuguese vessels operating in ICES 27.9.a. Selected species are included in the species listed in Table 1 of the EU MAP Delegated Decision annex.
Description of the population
Population targeted: Population targeted and studied: biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) landed at port by Portuguese vessels operating in ICES 27.9.a. Primary Sampling Unit (PSU): port*day Population sampled: Population sampled: Main national ports: VIANA DO CASTELO, POVOA DO VARZIM, MATOSINHOS, AVEIRO, FIGUEIRA DA FOZ, NAZARE, PENICHE, COSTA DA CAPARICA, SESIMBRA, SETUBAL, SINES, SAGRES, LAGOS, PORTIMAO, QUARTEIRA, OLHAO, VRSA Population not sampled: Minor national ports. Stratification: Stratification is used to improve sampling coverage through the year (by quarter) and along the Portuguese coast (by port).
AR comment: No deviations.
Sampling design and protocols
Sampling design description:

<p>On shore sampling schemes sample Landings (All fractions).</p> <p>a) Annual sampling effort (number of planned PSUs = port*days = onshore events) is fixed per selected species (of the Work Plan - Table 2.2).</p> <p>b) Sampling effort (number of port*day = onshore events = PSUs) is allocated to ports and quarters based on landings from previous reference years. Each onshore event (port*day = PSU) is selected by UPSWOR.</p> <p>c) In every port*day, for every selected species the observers attempt to sample every commercial size category, by randomly selecting 1 box from each commercial size category, from a list of all landings awaiting auction. This list includes the name of each vessel and the commercial species, commercial size category and weight of each of its boxes.</p> <p>d) Within each box, the observers randomly select a predefined number of individuals which are sampled (in situ or in laboratory) for biological variables (length, weight, age, sex ratio and/or sexual maturity).</p> <p>Is the sampling design compliant with the 4S principle?: Y.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: Documentation will be developed in 2022-2024.</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGCATCH (Working Group on Commercial Catches) and ICES WGBIOP (Working Group on Biological Parameters).</p> <p>Link to sampling protocol documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: The number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.</p>
AR comment: No deviations.
Data capture
Means of data capture: Biological data is collected with measuring board/tape/calliper (variable length) and scale (variable weight).

<p>Data capture documentation: Documentation on data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).</p> <p>Quality checks documentation: Quality of data capture is checked yearly before response to data calls (e.g. unexpected species in a given metier/area, unexpected age for a given species length, unexpected maturity stage for a given species length, unexpected biological variable for a given species). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: http://nautilus.ipma.pt/</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: Quality of data storage is checked yearly before response to data calls (e.g. if all data captured is stored in the national database, including different levels of data such as level of fishing trip, haul, sample, individual, etc.). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
<p>AR comment: No deviations.</p>
<p>Sample storage</p>
<p>Storage description:</p> <p>Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Sample analysis:</p> <p>Sample analysis follows national and international protocols (e.g. from WG and benchmark reports) for age reading, maturity stage, histology.</p>
<p>AR comment: No deviations.</p>
<p>Data processing</p>
<p>Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p>

Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Other regions/Madeira (CECAF): SciObsOnShore * Biological parameters specific

MS: PRT
Region: Other regions
Sampling scheme identifier: SciObsOnShore * Biological parameters specific
Sampling scheme type: Biological parameters specific
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The objective of this sampling scheme (Work Plan – Table 2.2) is to collect biological variables (weight, age, sex-ratio and maturity) of commercial fish species landed at auctions by Madeiran vessels operating in FAO 34.1.2 (RFMO/RFO/IO CECAF), for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). The fish samples are purchased from selected ports at Madeira.</p>
Description of the population
Population targeted: <p>Biological variables (weight, age, sex-ratio and maturity) are collected from selected commercial fish species included in the species listed in the work plan – table 2.2, from fish landed at Madeira auctions (=ports) by Madeiran active vessels (licenced to operate in FAO 34.1.2 (RFMO/RFO/IO CECAF).</p> <p>Population sampled: <p>Biological variables (weight, age, sex-ratio and maturity) of selected fish species included in the species listed in the work plan (table 2.2.) from a subset of vessels from a fleet segmented/métier based on the result from the analysis through the algorithm developed and ran from previous year landings.</p> <p>Stratification: Sampling scheme stratification includes ports on a spatial scale and months on a temporal scale. Overall, stratification is implemented to improve sampling coverage throughout the year.</p> </p>
AR comment: No deviations.
Sampling design and protocols
Sampling design description: <p>The sampling design is a stratified multistage scheme:</p>

- a) The Madeiran fleet is stratified by segment and métier, and by trip and month. According to EU Map requirements [EU Commission Delegated Decision (2021/1167/EU)], sampling effort is established as number of trips. Additionally, annual sampling effort is fixed by the National Work Plan for Data Collection, which sets the number of trips expected to be sampled by métier.
- b) For each segment/métier, visit_date for each auction*month is spread systematically throughout the month in order to cover all week-days where the fleet is active.
- c) In every auction*visit_date, observers attempt to sample a predefined number of vessel_sale_event. Each vessel_sale_event generally corresponds to one fishing trip landings. To select the vessel_sale_event that are to be sampled, observers obtain a list of all landings awaiting auction. The list generally includes the name of each vessel and the commercial species, commercial category and weight of each of its boxes. A vessel_sale_event is selected haphazardly from the list.
- d) In each vessel_sale_event, observers aim to sample boxes from every commercial species and commercial category.
- f) Regarding the sampling frame identifier DWF1_M1, different species may be present in the same box. Because *Aphanopus carbo* and *A. intermedius* are two sympatric and morphologically not easily distinguished species, observers sample all individuals in the same box without distinction.
- e) Biological variables sampling is performed in the laboratory in order to obtain stock-related variables such as biometry, age, sex-ratio and sexual maturity of the landed fish harvested by Madeiran fishing vessels operating in the CECAF FAO 34.1.2 area and sold at the auction houses.
- f) Commercial sampling for biological variables (length, weight, age, sex ratio and maturity) is performed monthly by purchasing fish samples from selected ports. Fish from each sample are randomly selected per length class (e.g. 5 individuals from 2, 5 or 10 cm length classes, depending on the species).
- g) Concerning scabbard fishes, the species *Aphanopus carbo* and *A. intermedius* are usually landed together, with a dominance of *A. carbo* (80%, see Delgado et al., 2013). These two species are sympatric and morphologically not easily distinguished when statistically sampled for length. Consequently, only biological variables sampling allows to identify *A. intermedius* (Nakamura & Parin, 1993). As such, this species is sampled opportunistically.
- h) Biological variables sampling follows standardized protocols depending on the species. Length-weight relationships, age-length-keys and maturity ogives are estimated for certain time periods.

References:

Delgado J, Reis S, González JA, Isidro E, Biscoito M, Freitas M, Tuset VM (2013) Reproduction and growth of *Aphanopus carbo* and *A. intermedius* (Teleostei: Trichiuridae) in the northeastern Atlantic. *Journal of Applied Ichthyology*, 29, 1008-1014.

Nakamura I, Parin NV (1993). Snake mackerels and cutlassfishes of the world (Families Gempylidae and Trichiuridae). An Annotated and Illustrated Catalogue of the Snake Mackerels, Snoeks, Escolars, Gemfishes, Sackfishes, Domine, Oilfish, Cutlassfishes, Scabbardfishes, Hairtails, and Frostfishes Known to Date. FAO, Rome

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

Regional coordination: N

Link to sampling design documentation: <https://marmadeira.com/publicacoes/>

Compliance with international recommendations: Y

Link to sampling protocol documentation: <https://marmadeira.com/publicacoes/>

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year: Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.

AR comment: No deviations.

Data capture

Means of data capture: Biological variables data is obtained through measurements, using either a big measuring board or a measuring tape, depending on the size of the individuals sampled. Also, data is obtained by heavy-duty balance, precision balance, optical imaging and histological equipment. À posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.

Data capture documentation: <https://marmadeira.com/publicacoes/>

Quality checks documentation: Y.

Quality checks and validation procedures are implemented:

1. All samples are checked by the coordinator before the data is inputted into the local database;
2. After all data is introduced into the local database it is subsequently checked for errors and outliers;

<p>3. A random check of 10% of the data is executed by inspecting the registered data for logical errors;</p> <p>4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations.</p>
AR comment: No deviations.
Data storage
<p>National database: Local Database</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: The obtained data is used for the elaboration of peer-reviewed scientific publications with an impact factor, and hence data quality is assured by journal editorial boards and reviewers.</p>
AR comment: No deviations to report.
Sample storage
<p>Storage description: Both otoliths and stomachs are kept in storage after biological sampling of specimens of a commercial species. Otoliths are extracted, rinsed and tagged upon storage. After analysis for age determination, samples are kept in Eppendorf tubes and included in the regional collection. Stomachs are extracted and kept refrigerated until analysis, where the hard part contents are kept and tagged in the collection, whilst the remaining components are discarded after identification of food sources.</p> <p>Sample analysis: NA</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p>

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Other regions/Madeira (ICCAT): SciObsOnShore * Biological parameters specific

MS: PRT
Region: Other regions
Sampling scheme identifier: SciObsOnShore * Biological parameters specific
Sampling scheme type: Biological parameters specific
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The objective of this sampling scheme (Work Plan – Table 2.2) is to collect biological variables (weight, age, sex-ratio and maturity) of commercial fish species landed at auctions by Madeiran vessels operating in FAO 34.1.2 (RFMO/RFO/IO ICCAT), for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). The fish samples are purchased from selected ports at Madeira.</p>
Description of the population
Population targeted: <p>Biological variables (weight, sex-ratio and maturity) are collected from selected commercial fish species included in the species listed in the work plan – table 2.2, from fish landed at Madeira auctions (=ports) by Madeiran active vessels (licenced to operate in FAO 34.1.2 (RFMO/RFO/IO ICCAT)).</p> Population sampled: <p>Biological variables (weight, sex-ratio and maturity) of selected fish species included in the species listed in the work plan (table 2.2.) from a subset of vessels from a fleet segmented/métier based on the result from the analysis through the algorithm developed and ran from previous year landings.</p> Stratification: Sampling scheme stratification includes ports on a spatial scale and months on a temporal scale. Overall, stratification is implemented to improve sampling coverage throughout the year.
AR comment: No deviations.
Sampling design and protocols
Sampling design description:

The sampling design is a stratified multistage scheme:

a) The Madeiran fleet is stratified by segment and métier, and by trip and month. According to EU Map requirements [EU Commission Delegated Decision (2021/1167/EU)], sampling effort is established as number of trips. Additionally, annual sampling effort is fixed by the National Work Plan for Data Collection, which sets the number of trips expected to be sampled by métier.

b) For each segment/métier, visit_date for each auction*month is spread systematically throughout the month in order to cover all week-days where the fleet is active.

c) In every auction*visit_date, observers attempt to sample a predefined number of vessel_sale_event. Each vessel_sale_event generally corresponds to one fishing trip landings. To select the vessel_sale_event that are to be sampled, observers obtain a list of all landings awaiting auction. The list generally includes the name of each vessel and the commercial species, commercial category and weight of each of its boxes. A vessel_sale_event is selected haphazardly from the list.

d) In each vessel_sale_event, observers aim to sample boxes from every commercial species and commercial category.

e) Biological variables sampling is performed in the laboratory in order to obtain stock-related variables in the sampling frame LPF1_M3 for skipjack (*Katsuwonus pelamis*) such as biometry, age, sex-ratio and sexual maturity of the landed fish harvested by Madeiran fishing vessels operating in the ICCAT FAO 34.1.2 area and sold at the auction houses.

f) Commercial sampling for skipjack (SKJ) biological variables (length, weight, sex ratio and maturity) is performed by purchasing fish samples from selected ports. Fish from each sample are randomly selected per length class (e.g., 5 individuals from 2, 5 or 10 cm length classes, depending on the species).

g) Biological variables sampling follows standardized protocols depending on the species. Length-weight relationships, age-length-keys and maturity ogives are estimated for certain time periods.

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

Regional coordination: N

Link to sampling design documentation: <https://www.iccat.int/en/iccatmanual.html>

Compliance with international recommendations: Y

Link to sampling protocol documentation: <https://www.iccat.int/en/iccatmanual.html>

AR comment: No deviations.

Sampling implementation

<p>Recording of refusal rate: Y</p> <p>Monitoring of sampling progress within the sampling year: Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.</p>
<p>AR comment: No deviations.</p>
<p>Data capture</p>
<p>Means of data capture: Biological variables data is obtained through measurements, using either a big measuring board or a measuring tape, depending on the size of the individuals sampled. Also, data is obtained by heavy-duty balance, precision balance, optical imaging and histological equipment. À posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.</p> <p>Data capture documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Quality checks documentation:</p> <p>Y. Quality control is carried out before data is submitted to ICCAT to meet the organisation's requirements. The Microsoft Excel © local database includes information by trip (vessel information, date, fishing location(s), landed weight by species) and statistical sampling information (species, sample weight, number of sampled specimens and length observations).</p> <p>Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> 1. All samples are checked by the coordinator before the data is inputted into the local database; 2. After all data is introduced into the local database it is subsequently checked for errors and outliers; 3. A random check of 10% of the data is executed by inspecting the registered data for logical errors; 4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations; 5. All data is made public in ICCAT Secretariat and respective website.
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: Local Database</p> <p>International database: https://iccat.int/en/accesingdb.html</p> <p>Quality checks and data validation documentation: Stocks of the main ICCAT species are assessed regularly by the Scientific Committee for Research and Statistics (SCRS) of ICCAT. The methods are defined and applied according to the SCRS work. The frequency</p>

of the stock assessments is predefined according to the SCRS schedule of assessments and requests from the ICCAT Commission.
AR comment: No deviations.
Sample storage
<p>Storage description: Stomachs are kept in storage after biological sampling of specimens of a commercial species. Stomachs are extracted and kept refrigerated until analysis, where the hard part contents are kept and tagged in the collection, whilst the remaining components are discarded after identification of food sources.</p> <p>Sample analysis: NA</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision):</p> <p>https://www.iccat.int/en/iccatmanual.html</p> <p>https://www.iccat.int/en/submitSTAT.html</p> <p>Editing and imputation methods: https://www.iccat.int/en/iccatmanual.html</p> <p>Quality document associated to a dataset: https://www.iccat.int/en/iccatmanual.html</p> <p>Validation of the final dataset: Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT.</p>
AR comment: No deviations.

Outermost regions/Madeira (NA): SciObsOnShore * Biological parameters specific

MS: PRT
Region: Outermost regions
Sampling scheme identifier: SciObsOnShore * Biological parameters specific
Sampling scheme type: Biological parameters specific
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The objective of this sampling scheme (Work Plan – Table 2.2) is to collect biological variables (weight, age, sex-ratio and maturity) of commercial limpet species (Patellidae) landed at auctions by Madeiran vessels operating in Madeira outermost region - FAO 34.1.2. (RFMO/RFO/IO - NA), for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). Limpets' samples are purchased from selected ports at Madeira.</p>
Description of the population
Population targeted: <p>Biological variables (weight, sex-ratio and maturity) are collected from selected commercial limpet's species included in the species listed in the work plan – table 2.2, from limpets landed at Madeira auctions (=ports) by Madeiran active vessels (licenced to operate in FAO 34.1.2 (RFMO/RFO/IO NA).</p> <p>Population sampled:</p> <p>Biological variables (weight, sex-ratio and maturity) of limpets species included in the sampling frame identifier MOL1_M4 in the work plan (table 2.2.) from a subset of vessels from a fleet segmented/métier based on the result from the analysis through the algorithm developed and ran from previous year landings.</p> <p>All ports in which limpets are landed in Madeira Island are considered for the above-mentioned sampling design, and around 5% of the total annual fishing trips are predicted to be sampled.</p> <p>Stratification: Sampling scheme stratification includes ports on a spatial scale and months on a temporal scale. Overall, stratification is implemented to improve sampling coverage throughout the year.</p>
AR comment: No deviations.
Sampling design and protocols

Sampling design description:

The sampling design is a stratified multistage scheme:

- a) The Madeiran fleet is stratified by segment and métier, and by trip and month. According to EU Map requirements [EU Commission Delegated Decision (2021/1167/EU)], sampling effort is established as number of trips. Additionally, annual sampling effort is fixed by the National Work Plan for Data Collection, which sets the number of trips expected to be sampled by métier.
- b) For each segment/métier, visit_date for each auction*month is spread systematically throughout the month in order to cover all week-days where the fleet is active.
- c) In every auction*visit_date, observers attempt to sample a predefined number of vessel_sale_event. Each vessel_sale_event generally corresponds to one fishing trip landings. To select the vessel_sale_event that are to be sampled, observers obtain a list of all landings awaiting auction. The list generally includes the name of each vessel and the commercial species, commercial category and weight of each of its boxes. A vessel_sale_event is selected haphazardly from the list.
- d) In each vessel_sale_event, observers aim to sample boxes from every commercial species and commercial category.
- e) For biological variables (length, weight, sex ratio and maturity) is performed monthly by purchasing limpet samples from selected ports. Limpets from each sample are randomly selected per length class (e.g., 5 individuals from 2 cm length classes, depending on the species).
- f) Biological variables sampling follows standardized protocols depending on the species. Length-weight relationships and maturity ogives are estimated for certain time periods (see Sousa et al., 2017).

References:

Sousa R, Delgado J, Pinto AR, Henriques P (2017). Growth and reproduction of the north-eastern Atlantic keystone species *Patella aspera* (Mollusca: Patellogastropoda). *Helgoland Marine Research*, 71,8

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

Regional coordination: N

Link to sampling design documentation: Sousa R, Delgado J, Pinto AR, Henriques P (2017). Growth and reproduction of the north-eastern Atlantic keystone species *Patella aspera* (Mollusca: Patellogastropoda). *Helgoland Marine Research*, 71,8. DOI 10.1186/s10152-017-0488-9

Compliance with international recommendations: Y

Link to sampling protocol documentation: Sousa R, Delgado J, Pinto AR, Henriques P (2017). Growth and reproduction of the north-eastern Atlantic keystone species <i>Patella aspera</i> (Mollusca: Patellogastropoda). <i>Helgoland Marine Research</i> , 71,8. DOI 10.1186/s10152-017-0488-9
AR comment: No deviations.
Sampling implementation
Recording of refusal rate: Y
Monitoring of sampling progress within the sampling year: Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.
AR comment: No deviations.
Data capture
<p>Means of data capture: Biological variables data is obtained through measurements, using a calliper. Also, data is obtained by precision balance, optical imaging and histological equipment. À posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.</p> <p>Data capture documentation: https://marmadeira.com/publicacoes/</p> <p>Quality checks documentation: Y.</p> <p>Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> 1. All samples are checked by the coordinator before the data is inputted into the local database; 2. After all data is introduced into the local database it is subsequently checked for errors and outliers; 3. A random check of 10% of the data is executed by inspecting the registered data for logical errors; 4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations.
AR comment: No deviations.
Data storage
National database: Local Database
International database: RDB/RDBES
Quality checks and data validation documentation: The obtained data is used for the elaboration of peer-reviewed scientific publications with an impact factor, and hence data quality is assured by journal editorial boards and reviewers.

AR comment: No deviations.
Sample storage
Storage description: Limpet gonads are kept in storage after specimens are sampled. Gonads are extracted and kept in Roti®-Histofix Eco Plus and refrigerated until histological analysis. After this procedure, histological slides are included in the local collection.
Sample analysis: NA
AR comment: No deviations.
Data processing
Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.
Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.
Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.
Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.
AR comment: No deviations.

Table 2.3 - Diadromous species data collection in freshwater

PT-ELE-commercial fishing-logbooks

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: PT-ELE-commercial fishing-logbooks
Sampling scheme type: Diadromous (commercial)
Observation type: Self water body
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.3) aiming at sampling information on commercial fishing effort, catches and landings of glass eel in “Management Units / River” ES_Min (that corresponds to Body of water Minho) and of yellow eel in “Management Units / River” PT_Port (in which the sampled Bodies of water are Mondego and Santo André lagoon).
Description of the population
Population targeted: Commercial fishing effort, catches and landings of glass eel in “Management Units / River” ES_Min and of yellow eel in “Management Units / River” PT_Port. Population sampled: Commercial fishing effort, catches and landings of glass eel in “Body of Water” Minho of “Management Units / River” ES_Min and of yellow eel in two “Bodies of Water” (Mondego and Santo André lagoon) of “Management Units / River” PT_Port. Population not sampled: Remaining bodies of water of the two “Management Units / Rivers” Es_Min and PT_Port. Stratification: Stratification is used to improve sampling coverage through the year (by month).
AR comment: No deviations.
Sampling design and protocols
Sampling design description: Method: logbook In each “Body of water” sampled with this sampling scheme / method, a fixed number of fishers fills a monthly logbook with self-reported data on commercial

<p>fishing effort, catches and landings of eel; in each month, the same fishers are systematically selected.</p> <p>Is the sampling design compliant with the 4S principle?: NA – Diadromous sampling scheme.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: Documentation will be developed in 2022-2024.</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGEEL (Working Group on Eels).</p> <p>Link to sampling protocol documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rate will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: The number of PSU per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Logbooks.</p> <p>Data capture documentation: Documentation will be developed in 2022-2024.</p> <p>Quality checks documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Data storage
<p>National database: Local database.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: N. Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.

Sample storage
Storage description: NA Sample analysis: N. Documentation will be developed in 2022-2024.
AR comment: No deviations.
Data processing
Evaluation of data accuracy (bias and precision): Documentation will be developed in 2022-2024. Editing and imputation methods: Documentation will be developed in 2022-2024. Quality document associated to a dataset: Documentation will be developed in 2022-2024. Validation of the final dataset: Data quality checks are carried out yearly to detect before response to data calls.
AR comment: No deviations.

PT-ELE-fishery-independent-stow nets

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: PT-ELE-fishery-independent-stow nets
Sampling scheme type: Diadromous (scientific)
Observation type: Scientific observer on rivers, lagoons, etc. (SciObs water body)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.3) aiming at sampling standing stock of glass eel, as well as length and biological variables (weight) of glass eel in two “Management Units / River” (ES_Min that corresponds to Body of water Minho; and PT_Port in which the sampled Body of water is Mondego).
Description of the population
Population: Standing stock of glass eel as well as length and biological variables (weight) of glass eel in two “Management Units / River” ES_Min and PT_Port. Population targeted: Standing stock of glass eel as well as length and biological variables (weight) of glass eel in lower estuary of two “Management Units / River” ES_Min and PT_Port. Population sampled: Standing stock of glass eel as well as length and biological variables (weight) of glass eel in lower estuary in one Body of water (Minho) of “Management Unit / River” ES_Min and in one “Body of water” (Mondego) of “Management Unit / River” PT_Port. Population not sampled: Remaining bodies of water of the two “Management Units / Rivers” Es_Min and PT_Port, and remaining reaches of the “Body of water” Minho of the “Management Unit / River” ES_Min and of the “Body of water” Mondego of the “Management Unit / River” PT_Port. Stratification: Stratification is used to improve sampling coverage through the year (by month).
AR comment: No deviations.
Sampling design and protocols
Sampling design description:

<p>Method – stow nets:</p> <p>In each “Body of water” sampled with this method, one site (in lower estuary) is sampled one night per month (in each of the 7 months between November and May); in each month, the site is selected by SRSWOR.</p> <p>In each stow net, the total weight of glass eel caught is determined, and a subsample of individuals is sampled for length and biological variables.</p> <p>Is the sampling design compliant with the 4S principle?: NA – Diadromous sampling scheme.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: Documentation will be developed in 2022-2024.</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGEEL (Working Group on Eels).</p> <p>Link to sampling protocol documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rate will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: The number of PSU per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation will be developed in 2022-2024.</p> <p>Quality checks documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Data storage
National database: Local database.

<p>International database: NA.</p> <p>Quality checks and data validation documentation: N. Documentation will be developed in 2022-2024.</p>
<p>AR comment: No deviations.</p>
<p>Sample storage</p>
<p>Storage description:</p> <p>Biological samples are stored at FCUL/CIIMAR.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Information on hard tissues (otoliths and hard tissues for age reading) stored by species/stock, geographic sub-area and by year will be developed in 2022-2024.</p> <p>Sample analysis: N. Documentation will be developed in 2022-2024.</p>
<p>AR comment: No deviations.</p>
<p>Data processing</p>
<p>Evaluation of data accuracy (bias and precision): Documentation will be developed in 2022-2024.</p> <p>Editing and imputation methods: Documentation will be developed in 2022-2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024.</p> <p>Validation of the final dataset: Data quality checks are carried out yearly to detect before response to data calls.</p>
<p>AR comment: No deviations.</p>

PT-ELE-fishery-independent-electrofishing

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: PT-ELE-fishery-independent-electrofishing
Sampling scheme type: Diadromous (scientific)
Observation type: Scientific observer on rivers, lagoons, etc. (SciObs water body)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.3) aiming at sampling standing stock of glass eel, as well as length and biological variables (age, weight and sex) of yellow and silver eel in two “Management Units / River” (ES_Min that corresponds to Body of water Minho; and PT_Port in which the sampled Body of water is Mondego).
Description of the population Population: Length and biological variables (age, weight and sex) of yellow and silver eel in two “Management Units / River” ES_Min and PT_Port. Population targeted: Length and biological variables (age, weight, sex) of yellow and silver eel in freshwater of two “Management Units / River” ES_Min and PT_Port. Population sampled: Length and biological variables (age, weight, sex) of yellow and silver eel in freshwater in one “Body of water” (Minho) of “Management Unit / River” ES_Min and in one “Body of water” (Mondego) of “Management Unit / River” PT_Port. Population not sampled: Remaining bodies of water of the two “Management Units / Rivers” Es_Min and PT_Port, and remaining reaches of the “Body of water” Minho of the “Management Unit / River” ES_Min and of the “Body of water” Mondego of the “Management Unit / River” PT_Port. Stratification: Stratification is used to improve sampling coverage through the year (by month).
AR comment: No deviations.
Sampling design and protocols
Sampling design description: Method – electrofishing:

<p>In each “Body of water” sampled with this method, a fixed number of sites (in freshwater) is sampled one night per season (in Spring and in Autumn); in each season, sites are selected by SRSWOR.</p> <p>All individuals of eel are sampled for length and biological variables and returned alive, except for a subsample that is sampled in the laboratory for further biological variables.</p> <p>Is the sampling design compliant with the 4S principle?: NA – Diadromous sampling scheme.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: Documentation will be developed in 2022-2024.</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGEEL (Working Group on Eels).</p> <p>Link to sampling protocol documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rate will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: The number of PSU per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation will be developed in 2022-2024.</p> <p>Quality checks documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Data storage
National database: Local database.

International database: NA.
Quality checks and data validation documentation: N. Documentation will be developed in 2022-2024.
AR comment: No deviations.
Sample storage
<p>Storage description:</p> <p>Biological samples are stored at FCUL/CIIMAR.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Information on hard tissues (otoliths and hard tissues for age reading) stored by species/stock, geographic sub-area and by year will be developed in 2022-2024.</p> <p>Sample analysis: N. Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): Documentation will be developed in 2022-2024.</p> <p>Editing and imputation methods: Documentation will be developed in 2022-2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024.</p> <p>Validation of the final dataset: Data quality checks are carried out yearly to detect before response to data calls.</p>
AR comment: No deviations.

PT-ELE-fishery-independent-fyke nets

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: PT-ELE-fishery-independent-fyke nets
Sampling scheme type: Diadromous (scientific)
Observation type: Scientific observer on rivers, lagoons, etc. (SciObs water body)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.3) aiming at sampling length and biological variables (age, weight and sex) of yellow and silver eel in two “Management Units / River” (ES_Min that corresponds to Body of water Minho; and PT_Port in which the sampled Bodies of water are Mondego and Santo André lagoon).
Description of the population
Population: Length and biological variables (age, weight and sex) of yellow and silver eel in two “Management Units / River” ES_Min and PT_Port. Population targeted: Length and biological variables (age, weight, sex) of yellow and silver eel in lower estuary, middle estuary and upper estuary of two “Management Units / River” ES_Min and PT_Port. Population sampled: Length and biological variables (age, weight, sex) of yellow and silver eel in lower estuary, middle estuary and upper estuary in one “Body of water” (Minho) of “Management Unit / River” ES_Min and in lower estuary of two “Bodies of water” (Mondego and Santo André lagoon) of “Management Unit / River” PT_Port. Population not sampled: Remaining bodies of water of the two “Management Units / Rivers” Es_Min and PT_Port, and remaining reaches of the “Body of water” Minho of the “Management Unit / River” PT_Port and of the two “Bodies of water” (Mondego and Santo André lagoon) of the “Management Unit / River” PT_Port. Stratification: Stratification is used to improve sampling coverage through the year (by month).
AR comment: No deviations.
Sampling design and protocols
Sampling design description:

<p>Method – fyke nets:</p> <p>In each “Body of water” sampled with this method, a fixed number of sites (in lower, middle and upper estuary) is sampled one night per season (in Spring and in Autumn) with a fixed number of nets per site; in each season, sites are selected by SRSWOR.</p> <p>All individuals of eel are sampled for length and biological variables and returned alive, except for a subsample that is sampled in the laboratory for further biological variables.</p> <p>Is the sampling design compliant with the 4S principle?: NA – Diadromous sampling scheme.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: Documentation will be developed in 2022-2024.</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGEEL (Working Group on Eels).</p> <p>Link to sampling protocol documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rate will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: The number of PSU per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation will be developed in 2022-2024.</p> <p>Quality checks documentation: Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Data storage

<p>National database: Local database.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: N. Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Sample storage
<p>Storage description:</p> <p>Biological samples are stored at FCUL/CIIMAR.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Information on hard tissues (otoliths and hard tissues for age reading) stored by species/stock, geographic sub-area and by year will be developed in 2022-2024.</p> <p>Sample analysis: N. Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): Documentation will be developed in 2022-2024.</p> <p>Editing and imputation methods: Documentation will be developed in 2022-2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024.</p> <p>Validation of the final dataset: Data quality checks are carried out yearly to detect before response to data calls.</p>
AR comment: No deviations.

PT-ELE-fishery-independent-eel pass

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: PT-ELE-fishery-independent-eel pass
Sampling scheme type: Diadromous (scientific)
Observation type: Scientific observer on rivers, lagoons, etc. (SciObs water body)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.3) aiming at sampling length and biological variables (age, weight and sex) of yellow eel in one “Management Unit / River” (PT_Port in which the sampled Body of water is Mondego).
Description of the population
Population: Length and biological variables (age, weight and sex) of yellow eel in one “Management Unit / River” PT_Port. Population targeted: Length and biological variables (age, weight, sex) of yellow eel in freshwater of one “Management Unit / River” PT_Port. Population sampled: Length and biological variables (age, weight, sex) of yellow eel in freshwater in one “Body of water” (Mondego) of “Management Unit / River” PT_Port. Population not sampled: Remaining bodies of water of the “Management Unit / River” PT_Port, and remaining reaches of the “Body of water” Mondego of the “Management Unit / River” PT_Port. Stratification: Stratification is used to improve sampling coverage through the year (by month).
AR comment: No deviations.
Sampling design and protocols
Sampling design description: Method – eel pass: In the “Body of water” sampled with this method, one site (in freshwater) is systematically sampled one day per week (during May-July) with a fixed number of nets per site; in each month, the same site is systematically selected.

<p>Al individuals of eel are sampled for length and returned alive.</p> <p>Is the sampling design compliant with the 4S principle?: NA – Diadromous sampling scheme.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: Documentation will be developed in 2022-2024.</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGEEL (Working Group on Eels).</p> <p>Link to sampling protocol documentation: Documentation will be developed in 2022-2024.</p>
<p>AR comment: Sampling planned for 1 day per week between May and July (12 Site*Week) could not be implemented due to a failure of the eel passage pump in March 2022 that was not fixed by the owners of the passage. To compensate for this technical failure, monitoring was conducted monthly to check if some individuals still used the passage despite the lack of water being pumped to attract them.</p>
<p>Sampling implementation</p>
<p>Recording of refusal rate: N. Recording of refusal rate will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: The number of PSU per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.</p>
<p>AR comment: No deviations.</p>
<p>Data capture</p>
<p>Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation will be developed in 2022-2024.</p> <p>Quality checks documentation: Documentation will be developed in 2022-2024.</p>
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: Local database.</p> <p>International database: NA.</p>

Quality checks and data validation documentation: N. Documentation will be developed in 2022-2024.
AR comment: No deviations.
Sample storage
<p>Storage description:</p> <p>Biological samples are stored at FCUL/CIIMAR.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Information on hard tissues (otoliths and hard tissues for age reading) stored by species/stock, geographic sub-area and by year will be developed in 2022-2024.</p> <p>Sample analysis: N. Documentation will be developed in 2022-2024.</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): Documentation will be developed in 2022-2024.</p> <p>Editing and imputation methods: Documentation will be developed in 2022-2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024.</p> <p>Validation of the final dataset: Data quality checks are carried out yearly to detect before response to data calls.</p>
AR comment: No deviations.

Table 2.4 - Recreational fisheries

North-East Atlantic: PT_ON_Sci_Shore

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: PT_ON_Sci_Shore
Sampling scheme type: recreational (on site surveys)
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022 - 2024
<p>Short description (max 100 words):</p> <p>PT_ON_Sci_Shore aims to collect recreational catch data from shore and boat anglers for Seabass <i>Dicentrarchus labrax</i> (Table 4 of the EU MAP Delegated Decision annex) in mainland.</p>
Description of the population
<p>Population targeted: The recreational fishing population to be considered is the average number of recreational fishers licensed for the activity, which includes shore and boat anglers, and to a lesser extent spearfishers. No gear type will <i>a priori</i> be left outside of the prospective sources. The target species is Seabass <i>Dicentrarchus labrax</i>, but catches of other species will also be recorded.</p> <p>Population sampled: The target population is based on licensed holders and the sampling will use onsite surveys, aiming at covering all fishing spots (even remote areas) and types of fishers. Spearfishers and boat anglers may, however, be difficult to reach and access via the onsite surveys. Recreational fisheries that only fish on night time may potentially only partially be covered, given the onsite surveys are only conducted during the day.</p> <p>Stratification: Stratification will be carried out on a temporal and spatial basis:</p> <ul style="list-style-type: none"> ○ Temporal stratification: sampling is uniformly stratified by season; ○ Spatial stratification: entire Portuguese continental coast (if considered appropriate, may be divided into five zones of geographic stratification corresponding to the coastal areas of the NUTS II divisions (North, Centre, Metropolitan Area of Lisbon, Alentejo, and Algarve). Zones may be merged depending on data quality.
AR comment:
<p>Population sample: The target population was based on licence holders and sampling was carried out through both on-site surveys, with the aim of covering all fishing points (even in</p>

remote areas) and types of fishermen, and online surveys which allowed for a large sample, collecting responses from all types of fisheries, even those less frequently present on site.

Stratification: Stratification was carried out on a temporal and spatial basis:

- Temporal stratification: sampling was uniformly stratified by season, splited in quarters.
- Spatial stratification: the online surveys were collected without spatial stratification and collect answers of fisheries from all the Portuguese coast.

The on-site surveys were collected from 11 zones of the Coast of Portugal, namely:

- o Parque Natural Litoral Norte – Esposende;
- o Parque Natural da Ria de Aveiro;
- o Parque Natural Sintra-Cascais;
- o Parque Natural da Arrábida;
- o Parque Natural do Sudoeste Alentejano e Costa Vicentina;
- o Ria Formosa;
- o Grande Porto;
- o Grande Lisboa;
- o Peniche;
- o Barlavento Algarvio;
- o Sotavento Algarvio;

The considered zones above are part of the coastal areas of the NUTS II divisions (North, Centre, Metropolitan Area of Lisbon, Alentejo and Algarve).

Sampling design and protocols

Apart from the official data on recreational fisheries licenses (DGRM), the data collection will be carried out via face-to-face questionnaire surveys.

Face-to-face surveys of shore anglers and shore-based spearfishers will be carried out using roving creel surveys. The method favours surveys of large areas, where the distribution and dispersion of fishers are unknown, and where multiple access points are available. This is a method of direct contact, in which the research team follows a random predefined path and intercepts fishers to interview them.

For boat angling and boat-based spearfishing, direct contact with fishers is only feasible using the access point survey method, in which the boarding sites are previously identified.

The questionnaires will focus at the main questions on catch and effort to allow interviewing fishers who have little availability of time.

Protocols will be used to randomly select the fishers (boats) to be approached for interview (e.g., in areas with high density of fishers or boats arriving at the same time, there will be protocols to randomly select the fishers (boats) to be approached for interview)

Sampling design description: Catch rates are obtained directly in the onsite surveys. Effort estimate is a 3 month recall ideally. In the case of incomplete trip interviews (and for anglers) that agreed to provide their contact, interviewees are contacted at the end of the day of the fishing trip, and only report for the remainder of that specific fishing trip.

For the calculation of Catches per Unit of Effort (CPUE), in number and weight (kg) of fish per hour, the methods proposed by Pollock et al. (1994), Lockwood (1999) and Erzini et al. (2008) will be used. For the calculation of the fishing effort (expressed in hours), the following variables will be considered: the number of licensed fishers, the average hours per fishing event per fishing mode and the average number of fishing days per fishing mode.

These three variables will be used to calculate the total fishing effort by stratum and for each fishing mode, measured in the total fishing hours for the period of one year. For each stratum, the total fishing effort by fishing mode is then multiplied by the Catch Per Unit of Effort (CPUE in kg/hour) to obtain annual catch estimates for Seabass.

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

Regional coordination: N.

Link to sampling design documentation: Portugal sent to the Commission, in March 2021, a concise report of the pilot Study conducted under the national WP 2017-2019 on “Relative share of catches of recreational fisheries compared to commercial fisheries” which involves *Dicentrarchus labrax*. This report includes the description of the pilot study (aim, methodology, available results, etc). This report was evaluated by STECF (STECF-21-09). The sampling design to collect catch data for *Dicentrarchus labrax* in 2022-2024 will be similar to the one described in the above-mentioned report.

Compliance with international recommendations: Y.

Link to sampling protocol documentation: Portugal sent to the Commission, in March 2021, a concise report of the pilot Study conducted under the national WP 2017-2019 on “Relative share of catches of recreational fisheries compared to commercial fisheries” which involves *Dicentrarchus labrax*. This report includes the description of the pilot study (aim, methodology, available results, etc). This report was evaluated by STECF (STECF-21-09). The sampling protocol to collect catch data for *Dicentrarchus labrax* in 2022-2024 will be similar to the one described in the above-mentioned report.

Compliance with international recommendations: Y.

AR comment:

Sampling design and protocols: The official data on recreational fishing licences (DGRM) was the database to support the online surveys. An SMS was sent to the fishermen directing them to the project website (<https://pescaludica.imrsurvey.pt/2/>). The surveys were carried out in order to obtain a more representative sample of active fishermen and to capture the remaining coastal areas of mainland Portugal. In this case, the target was the fishermen

registered in the DGRM database with a fishing licence issued in the last 12 months. In this survey, the fishermen identified, through the positioning on a map, the coordinates of their favourite fishing spot. This way we obtained the location of the coastal areas where there is a higher concentration of fishermen and a higher concentration of fishing effort per species. On-the-spot collection was carried out by means of face-to-face questionnaire surveys.

Sampling design description: Catch rates were obtained in the online surveys, with effort of recall the last 3 months of fisheries. The design for the calculation of Catch per Unit Effort (CPUE) and for the calculation of fishing effort was maintained. These three variables were used to calculate the total fishing effort by stratum and for each fishing mode, measured in total fishing hours for the period of one year. For each stratum, the total fishing effort by fishing mode was then multiplied by the catch per unit effort (CPUE in kg/hour) to obtain annual estimates of sea bass catch. To calculate total fishing effort, interviewers measured the size and weight of fisheries during on-site surveys.

Link to sampling design documentation: <https://www.dgrm.mm.gov.pt/web/guest/dados-estatisticos>

Link to sampling protocol documentation: <https://www.dgrm.mm.gov.pt/web/guest/dados-estatisticos>

Sampling implementation

Recording of refusal rate: N. “A refusal rate” is difficult to determine under a voluntary scheme. Proxies may be used that consider the universe licensed against the response level.

Monitoring of sampling progress within the sampling year: The rate of uptake of the sampling tools will be monitored. Levels of complementary sampling will largely depend on these, and will be targeted spatially to answer sampling deficiencies.

AR comment: No deviations.

Data capture

Means of data capture:

Fishing licenses are mandatory. The types of licenses for MRF are issued for varying validities, from daily to annual:

- o Shore fishing: angling from shore, or harvesting with allowed utensils;
- o Boat fishing: angling onboard a vessel;
- o Spearfishing: underwater fishing;
- o All fishing modes.

Apart from the official data on recreational fisheries licenses (DGRM), the data collection will be carried out via face-to-face questionnaire surveys using roving creel survey (shore angling) and access point survey (boat angling) methods.

Data capture documentation: Portugal sent to the Commission, in March 2021, a concise report of the pilot Study conducted under the national WP 2017-2019 on “Relative share of catches of recreational fisheries compared to commercial fisheries”, which involves *Dicentrarchus labrax*. This report includes the description of the pilot study (aim, methodology, available results, etc). This report was evaluated by STECF (STECF-21-09). Data capture for *Dicentrarchus labrax* in 2022-2024 will be similar to the one described in the above-mentioned report.

Licenses: (<https://www.dgrm.mm.gov.pt/en/web/guest/coluna-3>)

Quality checks documentation: Portugal sent to the Commission, in March 2021, a concise report of the pilot Study conducted under the national WP 2017-2019 on “Relative share of catches of recreational fisheries compared to commercial fisheries” which involves *Dicentrarchus labrax*. This report includes the description of the pilot study (aim, methodology, available results, etc). This report was evaluated by STECF (STECF-21-09). Quality checks of catch data for *Dicentrarchus labrax* in 2022-2024 will be similar to the one described in the above-mentioned report.

AR comment:

Data capture documentation: The surveys were programmed through the Limesurvey platform and applied through a tablet. Limesurvey allows the collection of all types of questions, enabling the definition of questions with complex visibility and input validation rules. The platform is also very flexible in providing multimedia resources (images and videos) to support the questions and in collecting information in different formats (such as image attachments, videos or GPS coordinates to locate the survey). To facilitate the reliable recording of specimen dimensions, digital scales and fishing tapes were used. Indicate any deviations. Do not change the text already adopted in the work plan.

Quality checks documentation: Quality control of the surveys was carried out in three phases:

- Survey design and programming: Filling rules and conditions were implemented in order to limit the amount of consistency errors.

-During fieldwork: Analysis of the responses received in the system. Evaluation of data, response time, time between surveys and other rules.

-After fieldwork: Contact with 10% of respondents on site, in order to confirm the validity of the information received.

Data storage

National database: NA. There is a license database and a single year of a survey in a system called Si2P. The database is being migrated to a new system, BMar PESCA, which will be improved with the addition of the new survey data.

<https://www.dgrm.mm.gov.pt/en/web/guest/coluna-3>

International database: NA

Quality checks and data validation documentation: The existing Recreational Fishing database will be complemented during the sampling period covered. This is expected to contain internal routines for basic errors detection, although most data collection will be “assisted” (e.g., GPS for location internal device clock for date and time, species photographs for identification, image recognition for size scales, etc.).

AR comment: No deviations.

Sample storage

Storage description: NA

Sample analysis: NA

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): Portugal sent to the Commission, in March 2021, a concise report of the pilot Study conducted under the national WP 2017-2019 on “Relative share of catches of recreational fisheries compared to commercial fisheries” which involves *Dicentrarchus labrax*. This report includes the description of the pilot study (aim, methodology, available results, etc). This report was evaluated by STECF (STECF-21-09). The evaluation of data accuracy for *Dicentrarchus labrax* in 2022-2024 will be similar to the one described in the above-mentioned report.

Editing and imputation methods: Portugal sent to the Commission, in March 2021, a concise report of the pilot Study conducted under the national WP 2017-2019 on “Relative share of catches of recreational fisheries compared to commercial fisheries” which involves *Dicentrarchus labrax*. This report includes the description of the pilot study (aim, methodology, available results, etc). This report was evaluated by STECF (STECF-21-09). Editing and imputation methods of catch data for *Dicentrarchus labrax* in 2022-2024 will be similar to the one described in the above-mentioned report.

Quality document associated to a dataset: N.

Validation of the final dataset: The existing Recreational Fishing database is expected to contain internal routines for basic errors detection, although most data collection will be “assisted” (e.g., GPS for location internal device clock for date and time, species photographs for identification, image recognition for size scales, etc.).

AR comment:

Evaluation of data accuracy (bias and precision): The proposal of an integrated methodology with online survey aims to reduce the potential error of avidity that tends to occur due to the exclusive use of face-to-face questionnaire methodologies. This error is caused by more active - avid - fishermen who tend to be more likely to be intercepted than occasional fishermen (Sullivan et al., 2006). Thus, the variables used to assess fishing effort (hours per fishing trip, days fished in the last 12 months and number of anglers with a licence) were weighted by the strata of avidity, according to the questionnaire that was conducted online.

Editing and imputation methods: The questionnaire script does not allow for missing data. In case of inconsistent answers, the appropriate procedures were followed for each type of question, according to ESOMAR guidelines.

Validation of the final dataset: A set of verification rules has been defined for logical validation and consistency, such as:

- Identity check

- Range check (limits dependent on inputs in other fields or fixed limits)

The dataset was also checked in order to identify outliers or potential errors; where applicable, a statistical procedure was used to estimate acceptable values.

North-East Atlantic: AZ_OFF_EM_Touristic

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: AZ_OFF_EM_Touristic
Sampling scheme type: Recreational (off-site surveys)
Observation type: Electronic monitoring on shore
Time period of validity: 2022 – 2024
Short description (max 100 words): AZ_OFF_EM_Touristic aiming to collect catch data from touristic fishing (charter boats companies) for elasmobranchs species as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population Population targeted: The target population are touristic fishing (charter boats). The off-site methodology presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. Population sampled: The touristic fishing companies are the population aim to sample. Stratification: For touristic fishing (charter boats; AZ_OFF_EM_Touristic) it is implemented as census.
AR comment: No deviations to indicate.
Sampling design and protocols
Sampling design description: In Azores the recreational fishing multispecies survey for 2022-2024 will focus on the catch estimation for the elasmobranchs species performed by the touristic fishing (charter companies) . The methodology will be based on a off-site survey. The AZ_OFF_EM_Touristic survey component it's headed for recreational boat charters for big game fishing and bottom fishing. Web-based and APP logbooks were implemented as mandatory, even though, enterprises will be contacted to confirm that they are reporting the data (retained catch and released per fishing trip). In cases of no-reporting, a 12-month recall phone survey will be applied. The AZ_OFF_EM_Touristic survey is planning to be a census. Is the sampling design compliant with the 4S principle?: NA. Regional coordination: N. Link to sampling design documentation: STECF report (Pilot Study 1.3) For touristic fishing (charter boats) the survey was implemented as mandatory for all touristic companies (AZ_OFF_EM_Touristic). Compliance with international recommendations: Y.

Link to sampling protocol documentation:

STECF report (Pilot Study 1.3)

<https://pescador.azores.gov.pt/> (The protocol documentation is in Portuguese language, and a print screen is available in Figure 1).

Compliance with international recommendations: Y.

AR comment: Although data collection for touristic fishing are mandatory, some companies are still difficult to engage in the web-based and APP logbook, for that reason the 12-month recall phone survey is still needed for some companies, which decreases the data quality.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year:

Follow-up mechanisms by e-mail and phone are establish quarter basis in AZ_OFF_EM_Touristic. The monitoring system drive to detection of inactivity, , no engagement in the survey by some companies, and informatics problems (e.g., APP) which trigger processes to analyse and find resolutions.

AR comment: No deviations.

Data capture

Means of data capture: Dedicated software was design to collect data, in particular, App (ios & Android) and web-based logbook (e-form Sraf) for tourist fishing (charter boats). For touristic fishing (charter boats) the logbook is mandatory.

The screenshot shows a web-based form titled 'Formulário' for 'REGISTO DE DADOS DA PESCA TURÍSTICA - Registo de Saída'. The form includes the following fields and sections:

- Data:** A date selection field.
- Hora Início:** Start time selection with 'Hora' and 'Minuto' dropdowns.
- Hora Final:** End time selection with 'Hora' and 'Minuto' dropdowns.
- Nº pescadores:** Number of fishermen selection.
- Modalidade:** Fishing modality selection with checkboxes for 'Big Game Fishing', 'Corrico costeiro', 'Pescaria de fundo', 'Tonaire', and 'Zagaia'.
- Local de pesca:** Fishing location selection with a dropdown and a 'Verificar disponibilidade' button.
- Captauras:** A table for recording catches with columns for 'Espécie', 'Captura', 'Número', 'Libertação', 'Número', and 'Libertação - Peso (kg)'. An 'Adicionar' button is below the table.

Figure 1. E-form APP (and Web) catch and effort data collection for touristic fishing (charter boats) (in Portuguese language).

Data capture documentation:

STECF report (Pilot Study 1.3)

<https://pescador.azores.gov.pt/> (The survey is in Portuguese language, and a print screen is available in Figure 1).

Quality checks documentation: N. Quality checks procedures can be found in STECF report (pilot studies), however new and updated documentation will be available in 2024.

AR comment: No deviations.

Data storage

National database: NA.

International database: NA.

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

AR comment: No deviations.

Sample storage

Storage description: NA.

Sample analysis: NA.

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): N.

The AZ_OFF_EM_Touristic is evaluated with complementary methods (phone recall survey) to identify cases of no engagement in the mandatory survey.

Editing and imputation methods: N. The on-site survey was postponed to 2022. Editing and imputations methods will be complete and available after carrying out the on-site survey in an internal report in 2024.

Quality document associated to a dataset: Documentation will be developed in 2022-2024

Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal

routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.

AR comment: No deviations. Documentation is in preparation and will be available in 2024.

North-East Atlantic: AZ_OFF_EM_LicenseSyst

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: AZ_OFF_EM_LicenseSyst
Sampling scheme type: Recreational (off-site surveys)
Observation type: Electronic monitoring on shore
Time period of validity: 2022 - 2024
Short description (max 100 words): AZ_OFF_EM_LicenseSyst aiming to collect catch data (and effort) from licensed recreational fishing modes (spearfishing and recreational boat fishing) for elasmobranchs species as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population Population targeted: The target population are recreational fishing boats and spearfishing. The off-site methodology presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. Population sampled: The licensed recreational fishing boat owners, spearfishers and touristic fishing companies are the population aim to sample. Shore angling and hand collecting were not covered since do not catch the target species, thus are outside the scope of the survey. Stratification: For the AZ_OFF_EM_LicenseSyst, the frame population (license holders) was stratified into subpopulations strata (fishing mode, island, year).
AR comment: No deviations.
Sampling design and protocols
Sampling design description: In Azores the recreational fishing multispecies survey for 2022-2024 will focus on the catch estimation for the elasmobranchs species performed by two recreational fishing modes (boat fishing and spearfishing). The AZ_OFF_EM_LicenseSyst survey is embedded in the recreational fishing license system. AZ_OFF_EM_LicenseSyst presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. This 12-month recall survey will take place at the time the recreational boat angler or spearfisher is applying for a recreational fishing license in an informatics platform that allows the data collection on fishing effort, mean catch per trip and main captured species. Is the sampling design compliant with the 4S principle?: NA. Regional coordination: N. Link to sampling design documentation: STECF report (Pilot Study 1.3) The off-site survey (AZ_OFF_EM_LicenseSyst) presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. The frame population (license holders) was

stratified into subpopulations strata (fishing mode, island, year). The applied stratification was implemented to ensure higher homogeneity in each stratum while maintaining strata with a minimum number of individuals – to reduce the likelihood of imputation. In addition, tending in account potential elements of the target population that could be excluded from the frame it was implemented a nested survey (within AZ_OFF_EM_LicenseSyst) to consider the reasons behind refusals and to access to non-response cases. The nested survey, explicitly aimed at collecting data on tourist fishers (within AZ_OFF_EM_LicenseSyst), but also, the first license cases and re-evaluation of refusals.

Compliance with international recommendations: Y.

Link to sampling protocol documentation:

STECF report (Pilot Study 1.3)

<https://pescaludica.azores.gov.pt/licencas.aspx> (The protocol documentation is in Portuguese language, and a print screen is available in Figure 1).

Compliance with international recommendations: Y.

AR comment: No deviations in the license survey and nested survey.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year:

Follow-up mechanisms with license issue entities by e-mail and phone are establish. The daily monitoring system drive to detection of unusual level of refusals, informatics problems (i.e., Survey at License System) which trigger processes to analyse and find resolution.

AR comment: No deviations in the license survey and nested survey.

Data capture

Means of data capture:

Dedicated software was design to collect data, in particular a Survey embedded in the informatics platform of license system – all the recreational fishers (spearfishers and boat fishing owners) that apply for a license need to fill a 12-month recall survey.

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): N.

A complemented off-site survey it was implemented in order to account typical bias, for example, recall bias within AZ_OFF_EM_LicenseSyst, and weighing, such as the use of AZ_OFF_EM_Recreational data to correct recall/avidity bias fishing effort estimation. The precision estimators will be presented in an internal report after the on-site survey be completed.

Editing and imputation methods: N. The on-site survey was postponed to 2022. Editing and imputations methods will be complete and available after carrying out the on-site survey in an internal report in 2024.

Quality document associated to a dataset: Documentation will be developed in 2022-2024

Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.

AR comment: No deviations. Documentation is in preparation and will be available in 2024.

North-East Atlantic: AZ_OFF_EM_Recreational

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: AZ_OFF_EM_Recreational
Sampling scheme type: Recreational (off-site surveys)
Observation type: Electronic monitoring on shore
Time period of validity: 2022 - 2024
Short description (max 100 words): AZ_OFF_EM_Recreational aiming to collect catch data from recreational fishing (spearfishing and recreational boat fishing) for elasmobranchs species as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population
Population targeted: The target population are recreational fishing boats, spearfishing. Population sampled: The licensed recreational fishing boat owners and spearfishers. Shore angling and hand collecting were not covered since do not catch the target species, thus are outside the scope of the survey. Stratification: For the AZ_OFF_EM_LicenseSyst, the frame population (license holders) was stratified into subpopulations strata (fishing mode, island, year). A subsampled (from license holders) is pull off and engage in the AZ_OFF_EM_Recreational survey.
AR comment: No deviations.
Sampling design and protocols
Sampling design description: In Azores the recreational fishing multispecies survey for 2022-2024 will focus on the catch estimation for the elasmobranchs species performed by two recreational fishing modes (boat fishing and spearfishing). The methodology will be based on a complemented survey design by applying an off-site survey. The AZ_OFF_EM_Recreational aims to get a subsample from license holders. To recruit a panel for the logbook is used has the main engagement method the invitation of the recreational fishers within the survey of the license system platform. It consists of a web (and APP) logbook that allows collecting data on fishing effort, catch, releases and economic expenditures. Is the sampling design compliant with the 4S principle?: NA. Regional coordination: N. Link to sampling design documentation: STECF report (Pilot Study 1.3) From the survey AZ_OFF_EM_LicenseSyst, anglers and spearfishers are invited to be part of the Azorean panel (AZ_OFF_EM_Recreational) to engage in the web based logbook (and APP). Fishers without informatic competence will enter in the panel but surveyed by phone at a monthly basis. Compliance with international recommendations: Y.

Link to sampling protocol documentation:

STECF report (Pilot Study 1.3)

<https://pescador.azores.gov.pt/> (The protocol documentation is in Portuguese language, and a print screen is available in Figure 1).

Compliance with international recommendations: Y.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year:

Follow-up mechanisms by e-mail and phone are establish monthly basis in AZ_OFF_EM_Recreational (including to record cases of drop-ins and drop-outs). The monitorization of data entering is made at daily basis. The monitoring system drive to detection of unusual level of refusals, informatics problems which trigger processes to analyse and find resolution.

AR comment: No deviations.

Data capture**Means of data capture:**

Dedicated software App (ios & Android) and web-based logbook (e-form Sraf) was design to collect data for recreational fishing (spearfishing and boat fishing). For AZ_OFF_EM_Recreational survey the panel is mainly recruited within the license system survey

The screenshot shows a web-based data collection form for recreational fishing. It includes several sections with checkboxes and input fields. The 'Dados do pescador' section has checkboxes for 'Pescador profissional', 'Pescador amador', 'Pescador ocasional', and 'Pescador ocasional'. The 'Dados da pesca' section has checkboxes for 'Pescador profissional', 'Pescador amador', 'Pescador ocasional', and 'Pescador ocasional'. The 'Dados da captura' section has a table with columns for 'Espécie', 'Quantidade', 'Peso', 'Comprimento', 'Sexo', 'Idade', 'Estado', 'Observações', and 'Data da captura'. The form also includes a map of the Azores archipelago and a section for 'Dados da captura' with a table for recording catch details.

Figure 1. E-form APP (and Web) catch and effort data collection for recreational fishing (spearfishing and recreational boat fishing) (in Portuguese language).

Data capture documentation:

<p>STECF report (Pilot Study 1.3)</p> <p>https://pescador.azores.gov.pt/ (The survey is in Portuguese language, and a print screen is available in Figure 1).</p> <p>Quality checks documentation: N. Quality checks procedures can be found in STECF report (pilot studies), however new and updated documentation will be available in 2024.</p>
AR comment: No deviations.

Data storage
<p>National database: NA.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.</p>
AR comment: No deviations.
Sample storage
<p>Storage description: NA.</p> <p>Sample analysis: NA.</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): N.</p> <p>A complemented off-site survey it was implemented in order to account typical bias, for example, recall bias within AZ_OFF_EM_LicenseSyst, and weighing, such as the use of AZ_OFF_EM_Recreational data to correct recall/avidity bias fishing effort estimation. The precision estimators will be presented in an internal report after the on-site survey be completed.</p> <p>Editing and imputation methods: N. The on-site survey was postponed to 2022. Editing and imputations methods will be complete and available after carrying out the on-site survey in an internal report in 2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024</p> <p>Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as</p>

implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.

AR comment: No deviations. Documentation is in preparation and will be available in 2024.

Other regions: AZ_OFF_EM_Touristic

MS: PRT
Region: Other regions
Sampling scheme identifier: AZ_OFF_EM_Touristic
Sampling scheme type: Recreational (off-site surveys)
Observation type: Electronic monitoring on shore
Time period of validity: 2022 - 2024
Short description (max 100 words): AZ_OFF_EM_Touristic aiming to collect catch data from touristic fishing (charter boats companies) for species (highly migratory ICCAT species) as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population
Population targeted: The target population are touristic fishing (charter boats). The off-site methodology presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. Population sampled: The touristic fishing companies are the population aim to sample. Stratification: For touristic fishing (charter boats; AZ_OFF_EM_Touristic) it is implemented as census.
AR comment: No deviations.
Sampling design and protocols
Sampling design description: In Azores the recreational fishing multispecies survey for 2022-2024 will focus on the catch estimation for the species (highly migratory ICCAT species) in Table 4 of the EU MAP Delegated Decision annex performed by the touristic fishing (charter companies). The methodology will be based on an off-site survey. The AZ_OFF_EM_Touristic survey component it's headed for recreational boat charters for big game fishing and bottom fishing. Web-based and APP logbooks were implemented as mandatory, even though, enterprises will be contacted to confirm that they are reporting the data (retained catch and released per fishing trip). In cases of no-reporting, a 12-month recall phone survey will be applied. The AZ_OFF_EM_Touristic survey is planning to be a census. Is the sampling design compliant with the 4S principle?: NA. Regional coordination: N. Link to sampling design documentation: STECF report (Pilot Study 1.3) For touristic fishing (charter boats) the survey was implemented as mandatory for all touristic companies (AZ_OFF_EM_Touristic). Compliance with international recommendations: Y.

Link to sampling protocol documentation:

STECF report (Pilot Study 1.3)

<https://pescador.azores.gov.pt/> (The protocol documentation is in Portuguese language, and a print screen is available in Figure 1).

Compliance with international recommendations: Y.

AR comment: Although data collection for touristic fishing are mandatory, some companies are still difficult to engage in the web-based and APP logbook, for that reason the 12-month recall phone survey is still needed for some companies, which decreases the data quality.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year:

Follow-up mechanisms by e-mail and phone are establish quarter basis in AZ_OFF_EM_Touristic. The monitoring system drive to detection of inactivity, no engagement in the survey by some companies, and informatics problems (e.g., APP) which trigger processes to analyse and find resolutions.

AR comment: No deviations.

Data capture**Means of data capture:**

Dedicated software was design to collect data, in particular, App (ios & Android) and web-based logbook (e-form Sraf) for tourist fishing (charter boats). Touristic fishing (charter boats) the logbook are mandatory.

The screenshot shows a web-based form titled 'Formulário REGISTO DE DADOS DA PESCA TURÍSTICA - Registo de Saída'. The form is in Portuguese and includes the following fields and sections:

- Data:** A date selection field.
- Hora início:** Start time selection fields for hour and minute.
- Hora final:** End time selection fields for hour and minute.
- Nº pescadores:** Number of fishermen selection field.
- Modalidade:** Fishing method selection with checkboxes for 'Big Game Fishing', 'Surfcasting', 'Bottom Fishing', 'Trawl', and 'Cast Net', plus a 'Outra:' field.
- Local de pesca:** Fishing location selection field.
- Especie alvo:** Target species selection field.
- Capturas:** A table with columns for 'Especie', 'Quantidade', 'Peso (kg)', 'Especie', 'Quantidade', 'Peso (kg)', and 'Especie', 'Quantidade', 'Peso (kg)'. An 'Adicionar' button is below the table.

Figure 1. E-form APP (and Web) catch and effort data collection for touristic fishing (charter boats) (in Portuguese language).

Data capture documentation:

<p>STECF report (Pilot Study 1.3)</p> <p>https://pescador.azores.gov.pt/ (The survey is in Portuguese language, and a print screen is available in Figure 1).</p> <p>Quality checks documentation: N. Quality checks procedures can be found in STECF report (pilot studies), however new and updated documentation will be available in 2024.</p>
AR comment: No deviations.
Data storage
<p>National database: NA.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.</p>
AR comment: No deviations.
Sample storage
<p>Storage description: NA.</p> <p>Sample analysis: NA.</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): N.</p> <p>The AZ_OFF_EM_Touristic is evaluated with complementary methods (phone recall survey) to identify cases of no engagement in the mandatory survey.</p> <p>Editing and imputation methods: N. The on-site survey was postponed to 2022. Editing and imputations methods will be complete and available after carrying out the on-site survey in an internal report in 2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024</p> <p>Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database</p>

is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.

AR comment: No deviations. Documentation is in preparation and will be available in 2024.

Other regions: AZ_OFF_EM_LicenseSyst

MS: PRT
Region: Other regions
Sampling scheme identifier: AZ_OFF_EM_LicenseSyst
Sampling scheme type: Recreational (off-site surveys)
Observation type: Electronic monitoring on shore
Time period of validity: 2022 - 2024
Short description (max 100 words): AZ_OFF_EM_LicenseSyst aiming to collect catch data (and effort) from licensed recreational fishing modes (spearfishing and recreational boat fishing) for species (highly migratory ICCAT species) as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population Population targeted: The target population are recreational fishing boats and spearfishing. The off-site methodology presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. Population sampled: The licensed recreational fishing boat owners, spearfishers and touristic fishing companies are the population aim to sample. Shore angling and hand collecting were not covered since do not catch the target species, thus are outside the scope of the survey. Stratification: For the AZ_OFF_EM_LicenseSyst, the frame population (license holders) was stratified into subpopulations strata (fishing mode, island, year).
AR comment: No deviations.
Sampling design and protocols
Sampling design description: In Azores the recreational fishing multispecies survey for 2022-2024 will focus on the catch estimation for the species (highly migratory ICCAT species) indicated in Table 4 of the EU MAP Delegated Decision annex performed by two recreational fishing modes (boat fishing and spearfishing). The AZ_OFF_EM_LicenseSyst survey is embedded in the recreational fishing license system. AZ_OFF_EM_LicenseSyst presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. This 12-month recall survey will take place at the time the recreational boat angler or spearfisher is applying for a recreational fishing license in an informatics platform that allows the data collection on fishing effort, mean catch per trip and main captured species. Is the sampling design compliant with the 4S principle?: NA. Regional coordination: N. Link to sampling design documentation: STECF report (Pilot Study 1.3) The off-site survey (AZ_OFF_EM_LicenseSyst) presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame

corresponds to each respective license holder. The frame population (license holders) was stratified into subpopulations strata (fishing mode, island, year). The applied stratification was implemented to ensure higher homogeneity in each stratum while maintaining strata with a minimum number of individuals – to reduce the likelihood of imputation. In addition, tending in account potential elements of the target population that could be excluded from the frame it was implemented a nested survey (within AZ_OFF_EM_LicenseSyst) to consider the reasons behind refusals and to access to non-response cases. The nested survey, explicitly aimed at collecting data on tourist fishers (within AZ_OFF_EM_LicenseSyst), but also, the first license cases and re-evaluation of refusals.

Compliance with international recommendations: Y.

Link to sampling protocol documentation:

STECF report (Pilot Study 1.3)

<https://pescaludica.azores.gov.pt/licencas.aspx> (The protocol documentation is in Portuguese language, and a print screen is available in Figure 1).

Compliance with international recommendations: Y.

AR comment: No deviations in the license survey and nested survey.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year:

Follow-up mechanisms with license issue entities by e-mail and phone are establish. The daily monitoring system drive to detection of unusual level of refusals, informatics problems (i.e., Survey at License System) which trigger processes to analyse and find resolution.

AR comment: No deviations in the license survey and nested survey.

Data capture

Means of data capture:

Dedicated software was design to collect data, in particular a Survey embedded in the informatics platform of license system – all the recreational fishers (spearfishers and boat fishing owners) that apply for a license need to fill a 12-month recall survey.

Menu

Pescaça Formulário

Formulário

ATENÇÃO: Se não efetuar o login deixará de ter acesso à informação quando fechar esta janela.

Iniciar sessão aqui.

Pesca de Lazer

☐ O pescador recusou-se a preencher o inquérito
☐ Não pode responder ao inquérito por ser a primeira licença do pescador
☐ Pescador lúdico não residente nos Açores (está de férias) e por essa razão não consegue responder ao inquérito
☐ Não é possível efetuar o inquérito, derivado à licença não estar a ser requerida pelo próprio

*Nacionalidade:

Selecionar

*Ano de Nascimento:

*Sexo:

☐ Feminino
☐ Masculino

1. INDIQUE AS 3 ÁREAS (FREGUESIAS) ONDE MAIS PESCOU NOS ÚLTIMOS 12 MESES

*Iha:

Selecionar

Iha:

Selecionar

Iha:

Selecionar

*Distância:

☐ Ao redor da ilha (< 2 milhas náuticas)
☐ Ao redor da ilha (entre 2 a 3 milhas náuticas)
☐ Ao redor da ilha (> 3 milhas náuticas)
☐ Montes submarinos

2. ESTIME O NÚMERO DE DIAS DE PESCA NOS ÚLTIMOS 12 MESES

*Número de dias:

☐ 0
☐ 1 – 10
☐ > 10

Figure 1. Survey embedded in the informatics platform of license system (in Portuguese language).

Data capture documentation:

STECF report (Pilot Study 1.3)

<https://pescaludica.azores.gov.pt/licencas.aspx> (The survey is in Portuguese language, and a print screen is available in Figure 1).

Quality checks documentation: N. Quality checks procedures can be found in STECF report (pilot studies), however new and updated documentation will be available in 2024.

AR comment: No deviations.

Data storage

National database: NA.

International database: NA.

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

AR comment: No deviations in the license survey and nested survey.

Sample storage

Storage description: NA.

Sample analysis: NA.
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): N.</p> <p>A complemented off-site survey it was implemented in order to account typical bias, for example, recall bias within AZ_OFF_EM_LicenseSyst, and weighing, such as the use of AZ_OFF_EM_Recreational data to correct recall/avidity bias fishing effort estimation. The precision estimators will be presented in an internal report after the on-site survey be completed.</p> <p>Editing and imputation methods: N. The on-site survey was postponed to 2022. Editing and imputations methods will be complete and available after carrying out the on-site survey in an internal report in 2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024</p> <p>Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.</p>
AR comment: No deviations. Documentation is in preparation and will be available in 2024.

Other regions: AZ_OFF_EM_Recreational

MS: PRT
Region: Other regions
Sampling scheme identifier: AZ_OFF_EM_Recreational
Sampling scheme type: Recreational (off-site surveys)
Observation type: Electronic monitoring on shore
Time period of validity: 2022 - 2024
Short description (max 100 words): AZ_OFF_EM_Recreational aiming to collect catch data from recreational fishing (spearfishing and recreational boat fishing) for species (highly migratory ICCAT species) as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population
Population targeted: The target population are recreational fishing boats, spearfishing. Population sampled: The licensed recreational fishing boat owners and spearfishers. Shore angling and hand collecting were not covered since do not catch the target species, thus are outside the scope of the survey. Stratification: For the AZ_OFF_EM_LicenseSyst, the frame population (license holders) was stratified into subpopulations strata (fishing mode, island, year). A subsampled (from license holders) is pull off and engage in the AZ_OFF_EM_Recreational survey.
AR comment: No deviations.
Sampling design and protocols
Sampling design description: In Azores the recreational fishing multispecies survey for 2022-2024 will focus on the catch estimation for the species (highly migratory ICCAT species) as indicated in Table 4 of the EU MAP Delegated Decision annex performed by two recreational fishing modes (boat fishing and spearfishing). The methodology will be based on a complemented survey design by applying an off-site survey. The AZ_OFF_EM_Recreational aims to get a subsample from license holders. To recruit a panel for the logbook is used has the main engagement method the invitation of the recreational fishers within the survey of the license system platform. It consists of a web (and APP) logbook that allows collecting data on fishing effort, catch, releases and economic expenditures. Is the sampling design compliant with the 4S principle?: NA. Regional coordination: N. Link to sampling design documentation: STECF report (Pilot Study 1.3) From the survey AZ_OFF_EM_LicenseSyst, anglers and spearfishers are invited to be part of the Azorean panel (AZ_OFF_EM_Recreational) to engage in the web-based logbook (and APP). Fishers without informatic competence will enter in the panel but surveyed by phone at a monthly basis.

Compliance with international recommendations: Y.

Link to sampling protocol documentation:

STECF report (Pilot Study 1.3)

<https://pescador.azores.gov.pt/> (The protocol documentation is in Portuguese language, and a print screen is available in Figure 1).

Compliance with international recommendations: Y.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year:

Follow-up mechanisms by e-mail and phone are establish monthly basis in AZ_OFF_EM_Recreational (including to record cases of drop-ins and drop-outs). The monitorization of data entering is made at daily basis. The monitoring system drive to detection of unusual level of refusals, informatics problems which trigger processes to analyse and find resolution.

AR comment: No deviations.

Data capture

Means of data capture:

Dedicated software App (ios & Android) and web-based logbook (e-form Sraf) was design to collect data for recreational fishing (spearfishing and boat fishing). For AZ_OFF_EM_Recreational survey the panel is mainly recruited within the license system survey.

Figure 1. E-form APP (and Web) catch and effort data collection for recreational fishing (spearfishing and recreational boat fishing) (in Portuguese language).

<p>Data capture documentation:</p> <p>STECF report (Pilot Study 1.3)</p> <p>https://pescador.azores.gov.pt/ (The survey is in Portuguese language, and a print screen is available in Figure 1).</p> <p>Quality checks documentation: N. Quality checks procedures can be found in STECF report (pilot studies), however new and updated documentation will be available in 2024.</p>
<p>AR comment: No deviations.</p>

<p>Data storage</p> <p>National database: NA.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.</p>
<p>AR comment: No deviations.</p>
<p>Sample storage</p> <p>Storage description: NA.</p> <p>Sample analysis: NA.</p>
<p>AR comment: No deviations.</p>
<p>Data processing</p> <p>Evaluation of data accuracy (bias and precision): N.</p> <p>A complemented off-site survey it was implemented in order to account typical bias, for example, recall bias within AZ_OFF_EM_LicenseSyst, and weighing, such as the use of AZ_OFF_EM_Recreational data to correct recall/avidity bias fishing effort estimation. The precision estimators will be presented in an internal report after the on-site survey be completed.</p> <p>Editing and imputation methods: N. The on-site survey was postponed to 2022. Editing and imputations methods will be complete and available after carrying out the on-site survey in an internal report in 2024.</p> <p>Quality document associated to a dataset: Documentation will be developed in 2022-2024</p> <p>Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain</p>

internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. Quality checks and validation procedures are implemented: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors.

AR comment: No deviations. Documentation is in preparation and will be available in 2024.

Table 2.5 - Sampling plan description for biological data

Azores On Shore ICES

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Azores On Shore ICES
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>Sampling schemes (Work Plan - Table 2.5) aiming at sampling length of species landed at ports by Azorean vessels operating in ICES 10.a.2. All landed species are sampled, including species listed in Table 1 of the EU-MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the “Landings” fractions are sampled.</p>
Description of the population
<p>Population targeted: Lengths of species landed at port by Azorean vessels operating in ICES 10.a.2 and licensed for the use of different fishing techniques.</p> <p>Primary Sampling Unit (PSU): port*day</p> <p>Population sampled: Lengths of species landed at port by a subset of Azorean vessels operating in ICES 10.a.2 from a fleet segment/gear/species assemblage combination are sampled based on the result of the application of a developed algorithm for previous year combinations. All minor ports without the presence of a scientific observer are excluded and no sampling occurs during the weekends.</p> <p>Population sampled/not sampled per metier and sampling scheme:</p> <p>-Metier LHP_FIF</p> <p>Population sampled: Main ports with licensed vessels using handlines targeting finfish (PDL - Ponta Delgada; MAD - Madalena; PVT - Praia da Vitória; SMT - São Mateus; HRT - Horta; SCF - Santa Cruz das Flores; VPT - Vila do Porto)</p> <p>Sampling frame identifier: AZM1- LHP_FIF</p> <p>Population not sampled: Minor ports with licensed vessels using handlines targeting finfish</p> <p>Sampling frame identifier: AZ3 – LHP_FIF_out of frame</p> <p>-Metier LHP_CEP</p> <p>Population sampled: Main ports with licensed vessels and using handlines targeting cephalopods (PDL - Ponta Delgada; RPX – Rabo de Peixe; MAD - Madalena; SCF - Santa Cruz das Flores)</p>

<p>Sampling frame identifier: AZM14 - LHP_CEP</p> <p>Population not sampled: Minor ports with licensed vessels using handlines targeting cephalopods</p> <p>Sampling frame identifier: AZ15 – LHP_CEP_out of frame</p> <p>-Metier PS_SPF</p> <p>Population sampled: Main ports with licensed vessels using small purse seines targeting small pelagic fish (RPX - Rabo de Peixe; SMT - São Mateus; MAD - Madalena)</p> <p>Sampling frame identifier: AZM18 - PS_SPF</p> <p>Population not sampled: Minor ports with licensed vessels using small purse seines targeting small pelagic fish</p> <p>Sampling frame identifier: AZ19 – PS_SPF_out of frame</p> <p>-Metier FPO</p> <p>Population sampled: Ports with licensed vessels using pots and traps</p> <p>Sampling frame identifier: AZM27 - FPO</p> <p>Population not sampled: Other ports with landings from vessels using pots and traps</p> <p>Sampling frame identifier: AZ54 - FPO_out of frame</p> <p>-Metier LLS_DWS</p> <p>Population sampled: Main ports with licensed vessels using set longlines targeting deep-water species and other demersal (PDL - Ponta Delgada; PVT – Praia da Vitória; SMT - São Mateus; HOR - Horta)</p> <p>Sampling frame identifier: AZM43 - LLS_DWS_<12m and AZM45 - LLS_DWS_>12m</p> <p>Population not sampled: Minor ports with licensed vessels using set longlines targeting deep-water species and other demersal</p> <p>Sampling frame identifier: AZ46 – LLS_DWS_out of frame</p> <p>Stratification: In order to improve sampling coverage through the year (by quarter) and in the most important auctions (main ports) to be sampled within each fleet segment/gear/species assemblage combination allocated by quarter proportionally to previous sampling year.</p>
<p>AR comment: A different main port concerning sampling frame identifier AZM18 – PS_SPF was implemented in sampling. During 2022, and because of an operational change in landings that occurred during the pandemic (and which is to maintain), instead of RPX, the main port considered was PDL.</p>
<p>Sampling design and protocols</p>
<p>Sampling design description: Scientific observers on shore attempt to sample a predefined number of vessel sale events (landing of one fishing trip) for every auction*visit date. This is conducted by random selection from vessels present at the harbour. Boxes of all species landed are sampled by conducting concurrent sampling scheme for all catch fractions landed.</p>

A fishing effort related questionnaire is also performed to the fishing vessel master selected for sampling.

On shore sampling schemes sample Landings (All fractions):

- a. The Azorean fleet is stratified by fleet segment, metier and time. Sampling effort is established as number of trips expected to be sampled in each fleet (~ metier) and allocated to auctions and quarters proportionally to last year's landings;
- b. In every port*day, samplers attempt to sample a predefined number of vessel_sale event. Each vessel_sale event corresponds to the landings of one fishing trip. Samplers randomly select the vessel_sale event from vessels present at the harbor;
- c. In each vessel_sale event, the samplers aim to sample boxes from every commercial species and commercial category. This way, a concurrent sampling scheme is applied, although sometimes the coverage of all species is not possible;
- d. Within each commercial category samplers randomly select boxes to be sampled aiming for a minimum number of 50 fishes;
- e. A fishing effort related questionnaire is also performed to the shipmaster of the vessel selected for sampling;
- f. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the "Landings" fractions are sampled. Within a sampled commercial fishing trip, PETS observation effort is done in all boxes sampled for other species (protocol described in topics a-d);
- g. Refusal rates are recorded.

During the sampling period covered, fish length measurements will also be recorded in five auctions using an electronic system composed by a local unit for automatic image acquisition of fish boxes and a remote database to record the processed images using Fishmetrics system.

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

Regional coordination: NA.

Link to sampling design documentation: Documentation on sampling design works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

Compliance with international recommendations: Y (ICES WGCATCH).

Link to sampling protocol documentation: Documentation on sampling protocol works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y.
Monitoring of sampling progress within the sampling year: The executed number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical limitations) is rescheduled.
AR comment: No deviations.
Data capture
Means of data capture: Depending on the species, lengths are collected using measuring board/tape or calipers. Scales are used for weight data. Fishing effort questionnaires are conducted in person or by phone.
Data capture documentation: Documentation on data capture works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.
Quality checks documentation: Documentation on quality checks works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.
AR comment: No deviations.
Data storage
National database: NA.
International database: RDB/RDBES
Quality checks and data validation documentation: Routines will be implemented due to the development of a new data base.
AR comment: No deviations.
Sample storage
Storage description: Age structures are mostly kept in <i>ependorfs</i> , which are placed in PCR tube storage racks, at the laboratory and for indefinite period. Access to samples is organised by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at https://datacollection.jrc.ec.europa.eu/ars .
Sample analysis: On-shore sampling follows recommendations from several ICES working groups: WGCATCH (ices.dk) , WGDEEP (ices.dk) , WGEF (ices.dk) , WGHANSA (ices.dk) .
AR comment: No deviations.
Data processing
Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Azores On Shore ICCAT

MS: PRT
Region: Other regions
Sampling scheme identifier: Azores On Shore ICCAT
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): <p>Sampling schemes (Work Plan - Table 2.5) aiming at sampling length of species landed at ports by Azorean vessels operating in ICES 10.a.2. All landed species are sampled, including species listed in Table 1 of the EU-MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the “Landings” fractions are sampled.</p>
Description of the population <p>Population targeted: Lengths of species landed at port by Azorean vessels operating in ICES 10.a.2 and licensed for the use of different fishing techniques.</p> <p>Primary Sampling Unit (PSU): port*day</p> <p>Population sampled: Lengths of species landed at port by a subset of Azorean vessels operating in ICES 10.a.2 from a fleet segment/gear/species assemblage combination are sampled based on the result of the application of a developed algorithm for previous year combinations. All minor ports without the presence of a scientific observer are excluded and no sampling occurs during the weekends.</p> <p>Population sampled/not sampled per metier and sampling scheme:</p> <p>-Metier LHP_LPF</p> <p>Population sampled: Main ports with licensed vessels using pole and line targeting tuna species (PDL - Ponta Delgada; MAD - Madalena; VPT - Vila do Porto)</p> <p>Sampling frame identifier: AZM24 - LHP_LPF_<12m and AZM25 - LHP_LPF_>12m</p> <p>Population not sampled: Minor ports with licensed vessels using pole and line targeting large pelagic fish</p> <p>Sampling frame identifier: AZ26 – LHP_LPF_out of frame</p> <p>-Metier LLD_LPF</p> <p>Population sampled: Main port with licensed vessels using drifting longlines targeting swordfish (PDL - Ponta Delgada)</p> <p>Sampling frame identifier: AZM29 - LLD_LPF</p> <p>Population not sampled: Minor ports with licensed vessels using drifting longlines targeting swordfish</p>

Sampling frame identifier: AZ30 – LLD_LPF_out of frame
<p>Stratification: In order to improve sampling coverage through the year (by quarter) and in the most important auctions (main ports) to be sampled within each fleet segment/gear/species assemblage combination allocated by quarter proportionally to previous sampling year.</p>
<p>AR comment: A different main port concerning sampling frame identifiers AZM24 - LHP_LPF_<12m and AZM25 - LHP_LPF_>12m was implemented in sampling. During 2022, due to construction works in cold store facilities at the port of MAD, tuna landings were transferred into HRT.</p>
Sampling design and protocols
<p>Sampling design description: Scientific observers on shore attempt to sample a predefined number of vessel sale events (landing of one fishing trip) for every auction*visit date. This is conducted by random selection from vessels present at the harbour. Boxes of all species landed are sampled by conducting concurrent sampling scheme for all catch fractions landed. A fishing effort related questionnaire is also performed to the fishing vessel master selected for sampling.</p> <p>On shore sampling schemes sample Landings (All fractions):</p> <ol style="list-style-type: none"> The Azorean fleet is stratified by fleet segment, metier and time. Sampling effort is established as number of trips expected to be sampled in each fleet (~ metier) and allocated to auctions and quarters proportionally to last year's landings; In every port*day, samplers attempt to sample a predefined number of vessel_sale event. Each vessel_sale event corresponds to the landings of one fishing trip. Samplers randomly select the vessel_sale event from vessels present at the harbor; In each vessel_sale event, the samplers aim to sample boxes from every commercial species and commercial category. This way, a concurrent sampling scheme is applied, although sometimes the coverage of all species is not possible; Within each commercial category samplers randomly select boxes to be sampled aiming for a minimum number of 50 fishes; A fishing effort related questionnaire is also performed to the shipmaster of the vessel selected for sampling; Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the "Landings" fractions are sampled. Within a sampled commercial fishing trip, PETS observation effort is done in all boxes sampled for other species (protocol described in topics a-d); Refusal rates are recorded.

<p>During the sampling period covered, fish length measurements will also be recorded in five auctions using an electronic system composed by a local unit for automatic image acquisition of fish boxes and a remote database to record the processed images using Fishmetrics system.</p> <p>Is the sampling design compliant with the 4S principle?: N.</p> <p>Regional coordination: Not applicable.</p> <p>Link to sampling design documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations (e.g., ICCAT Manual).</p> <p>Link to sampling protocol documentation: https://www.iccat.int/en/iccatmanual.html</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: Y.</p> <p>Monitoring of sampling progress within the sampling year: The executed number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical limitations) is rescheduled.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Depending on the species, lengths are collected using measuring board/tape or calipers. Scales are used for weight data. Fishing effort questionnaires are conducted in person or by phone.</p> <p>Data capture documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Quality checks documentation: Y. https://www.iccat.int/en/iccatmanual.html - Data Base and Manual.</p>
AR comment: No deviations.
Data storage
<p>National database: NA.</p> <p>International database: https://www.iccat.int/en/iccatmanual.html - Data Base.</p> <p>Quality checks and data validation documentation: https://www.iccat.int/en/iccatmanual.html - Data Base and Manual.</p>
AR comment: No deviations.
Sample storage
<p>Storage description: Age structures are mostly kept in <i>eppendorfs</i>, which are placed in PCR tube storage racks, at the laboratory and for indefinite period. Access to samples is organised</p>

by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at <https://datacollection.jrc.ec.europa.eu/ars>.

Sample analysis: <https://www.iccat.int/en/iccatmanual.html>

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): Y. <https://www.iccat.int/en/submitSTAT.html> (Submitting Stat Data).

Editing and imputation methods: Y. <https://www.iccat.int/en/iccatmanual.html>

Quality document associated to a dataset: <https://www.iccat.int/en/submitSTAT.html>

Validation of the final dataset: Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT.

AR comment: No deviations.

Azores On Shore NA

MS: PRT
Region: Outermost regions
Sampling scheme identifier: Azores On Shore NA
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>Sampling scheme (Work Plan - Table 2.5) aiming at sampling length of specimens landed at ports by Azorean hand collectors or vessels operating in ICES 10.a.2. All landed species are sampled, including species listed in Table 1 of the EU-MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the “Landings” fractions are sampled.</p>
<p>Description of the population</p> <p>Population targeted: Lengths of species landed at port by Azorean hand collectors or vessels operating in ICES 10.a.2 and licensed for limpets harvesting and for the use of set gillnets.</p> <p>Primary Sampling Unit (PSU): port*day</p> <p>Population sampled: Lengths of species landed at port by a subset of Azorean hand collectors or vessels operating in ICES 10.a.2 are sampled based on the result of the application of a developed algorithm for previous year combinations. No sampling occurs during the week-ends.</p> <p>Population sampled/not sampled per metier and sampling scheme:</p> <p>-Metier GNS_MPD</p> <p>Population sampled: Ports with licensed vessels using set gillnets targeting mixed pelagic and demersal species</p> <p>Sampling frame identifier: AZM22 - GNS_MPD</p> <p>Population not sampled: Other ports with landings from vessels using set gillnets targeting mixed pelagic and demersal species</p> <p>Sampling frame identifier: AZ53 - GNS_MPD_out of frame</p> <p>-Metier GRAPP</p> <p>Population sampled: Ports with registered hand collectors targeting limpets</p> <p>Sampling frame identifier: AZM51 - GRAPP</p> <p>Population not sampled: Other ports with landings from grappling <i>Patellidae</i></p> <p>Sampling frame identifier: AZ52 - GRAPP_out of frame</p>

Stratification: In order to improve sampling coverage through the year (by quarter) and in the most important auctions (main ports) to be sampled within this metier allocated by quarter proportionally to previous sampling year.

AR comment: No deviations.

Sampling design and protocols

Sampling design description: Scientific observers on shore attempt to sample a predefined number of sale events (landing of one harvesting event or vessel trip) for every auction*visit date. This is conducted by random selection from hand collectors or vessels present at the harbour. Boxes of all species landed are sampled by conducting concurrent sampling scheme for all catch fractions landed. A fishing effort related questionnaire is also performed to the hand collector or shipmaster of the vessel selected for sampling.

On shore sampling schemes sample Landings (All fractions).

- a. Sampling effort is established as number of harvesting events or number of trips expected to be sampled and allocated to auctions and quarters proportionally to last year's landings;
- b. In every port*day, samplers attempt to sample a predefined number of limpets_sale event or vessel_sale_event (parrotfish). Each limpets_sale event or vessel_sale_event corresponds to the landings of one harvesting event. Samplers randomly select the limpets_sale event from hand collectors or of one fishing trip present at the harbor;
- c. In each limpets_sale event or vessel_sale_event, the samplers aim to sample boxes from every commercial species and commercial category. This way, a concurrent sampling scheme is applied, although sometimes the coverage of all species is not possible;
- d. Within each commercial category samplers randomly select boxes to be sampled aiming for a minimum number of 50 individuals;
- e. A fishing effort related questionnaire is also performed to the hand collector selected for sampling;
- f. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the "Landings" fractions are sampled. Within a sampled commercial fishing trip, PETS observation effort is done in all boxes sampled for other species (protocol described in topics a-d);
- g. Refusal rates are recorded.

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

Regional coordination: Not applicable.

Link to sampling design documentation: Documentation on sampling design works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

<p>Compliance with international recommendations: Not applicable.</p> <p>Link to sampling protocol documentation: Documentation on sampling protocol works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.</p>
<p>AR comment: During 2022, length measurements from landings of sampling frame identifier AZM22 – GNS_MPD were recorded using the Fishmetrics system (an electronic system composed by a local unit for automatic image acquisition of fish boxes and a remote database to record the processed images).</p>
<p>Sampling implementation</p>
<p>Recording of refusal rate: Y.</p> <p>Monitoring of sampling progress within the sampling year: Monthly monitoring of the executed number of PSU per trimester of this sampling scheme is followed by rescheduling (when possible) of the number of PSU planned but not executed (due to operational/logistical limitations).</p>
<p>AR comment: No deviations.</p>
<p>Data capture</p>
<p>Means of data capture: Lengths are collected using electronic/analogic calipers or measuring boards. Scales are used for weight data. Fishing effort questionnaires are conducted in person or by phone.</p> <p>Data capture documentation: Documentation on data capture works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.</p> <p>Quality checks documentation: Documentation on quality checks works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.</p>
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: NA.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors; (4) Length distribution and effort samples are then connected with the market landings for future cross examinations.
<p>AR comment: No deviations.</p>

Sample storage
Storage description: NA.
Sample analysis: NA.
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): N.</p> <p>Quality checks and validation procedures are implemented:</p> <p>(1) All samples are checked by a coordinator before the input of data;</p> <p>(2) All data introduced in database is checked for syntax errors;</p> <p>(3) A random check of 10% of the data is executed by inspecting the registered data for logical errors;</p> <p>(4) Length distribution and effort samples are then connected with the market landings for future cross examinations.</p> <p>Editing and imputation methods: N. Access for editing data is limited to specific senior technicians with different levels of access.</p> <p>Quality document associated to a dataset: N.</p> <p>Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.</p>
AR comment: No deviations.

Azores At Sea ICES

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Azores At Sea ICES
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial vessels)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>Sampling schemes (Work Plan - Table 2.5) aiming at sampling all catch fractions specific composition (including discards), both in number and volume, lengths, and biological variables (sex - only for elasmobranchs and crustaceans) of species captured by Azorean vessels operating in ICES 10.a.2. All captured species are sampled, including species listed in Table 1 of the EU-MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) although not specifically designed, is also covered within the sampling scheme (along with quantification of PETS observation effort).</p>
Description of the population
<p>Population targeted: Lengths and biological variables of species captured by Azorean vessels operating in ICES 10.a.2 and licensed for the use of different fishing techniques, except for handliners targeting tuna (pole and line).</p> <p>Primary Sampling Unit (PSU): vessel*trip</p> <p>Population sampled: Lengths and biological variables of species captured by a subset of Azorean vessels operating in ICES 10.a.2 from a list of cooperative vessels for each fleet segment/gear/species assemblage that are willing and have logistics conditions (space and safety equipment) to take scientific observers onboard and registered at the main Azorean ports. The list of vessels for each fleet segment/metier is updated annually based on a combination of the results from the analysis through the algorithm developed and applied for previous year landings.</p> <p>Population sampled/not sampled per metier and sampling scheme:</p> <p>-Metier LHP_FIF</p> <p>Population sampled: List of active handliners targeting finfish and landing in one of the main ports (PDL - Ponta Delgada; MAD - Madalena; PVT - Praia da Vitória; SMT - São Mateus; HRT - Horta)</p> <p>Sampling frame identifier: AZS4 - LHP_FIF</p> <p>Population not sampled: Other handliners targeting finfish operating from minor ports</p> <p>Sampling frame identifier: AZ5 - LHP_FIF_out of frame</p> <p>-Metier LHP_CEP</p>

<p>Population sampled: List of active handliners targeting cephalopods and landing in one of the main ports for this species (PDL - Ponta Delgada; RPX - Rabo de Peixe; MAD - Madalena)</p> <p>Sampling frame identifier: AZS16 - LHP_CEP</p> <p>Population not sampled: Other handliners targeting cephalopods operating from minor ports</p> <p>Sampling frame identifier: AZ17 - LHP_CEP_out of frame</p> <p>-Metier PS_SPF</p> <p>Population sampled: List of active purse seiners targeting small pelagic fish and landing in one of the main ports for these species (RPX - Rabo de Peixe; SMT - São Mateus; MAD - Madalena)</p> <p>Sampling frame identifier: AZS20 - PS_SPF</p> <p>Population not sampled: Other purse seiners targeting small pelagic fish operating from minor ports</p> <p>Sampling frame identifier: AZ21 - PS_SPF_out of frame</p> <p>-Metier FPO</p> <p>Population sampled: List of active vessels using pots and traps</p> <p>Sampling frame identifier: AZS28 - FPO</p> <p>Population not sampled: Other vessels using pots and traps</p> <p>Sampling frame identifier: AZ56 - FPO_out of frame</p> <p>-Metier LLS_DWS</p> <p>Population sampled: List of active set longliners targeting deep-water species and other demersal and landing in one of the main ports (PDL - Ponta Delgada; PVT - Praia da Vitória; SMT - São Mateus; HOR - Horta)</p> <p>Sampling frame identifier: AZS47 - LLS_DWS_<12m and AZS49 - LLS_DWS_>12m</p> <p>Population not sampled: Other set longliners targeting deep-water species and other demersal operating from minor ports</p> <p>Sampling frame identifier: AZ50 - LLS_DWS_out of frame</p> <p>Stratification: In order to improve sampling coverage through the year (by quarter) and in the most important auctions (main ports) to be sampled within each fleet segment/gear/species assemblage combination allocated by quarter proportionally to previous sampling year.</p>
<p>AR comment: No at-sea sampling occurred from Terceira Island fishing fleet (PVT and SMT ports).</p>
<p>Sampling design and protocols</p>
<p>Sampling design description: Scientific observers at sea attempt to sample a predefined number of fishing trips on board vessels selected from a set of cooperative vessels within each fleet segment/gear/species assemblage combination. These sampling schemes collect,</p>

on a haul-by-haul basis, comprehensive data on species composition (including incidental by-catch), length composition of all retained and discarded components of the catch, sex for elasmobranchs and crustaceans, reason for discarding and vitality of discarded specimens. Scientific observers on shore attempt to sample landings of vessels with a scientific observer on board.

At sea sampling schemes sample Catches (All fractions):

- a. The Azorean fleet is stratified by fleet segment, metier and time. Sampling effort is established as number of trips expected to be sampled in each fleet (~ metier) and allocated to different metiers and quarters proportionally to last year's effort and/or landings;
- b. Scientific observers sort the sample into catch fractions according to the crew's criteria.
- c. All hauls are sampled following established sampling priority levels (SPL):
SPL 1 – all discarded species lengths and retained species composition in volume;
SPL 2 – sub sample of retained target species lengths;
SPL 3 – sub sample of retained by-catch species lengths;
- d. Observation of PETS (Protected Endangered and Threatened Species) although not specifically designed, is also covered within the sampling scheme (along with quantification of PETS observation effort). PETS observation effort is conducted during the hauling fishing operation;
- e. Refusal rates are recorded.

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

Regional coordination: Not applicable.

Link to sampling design documentation: Documentation on sampling design works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

Compliance with international recommendations: Y (ICES WGCATCH and ICES WGBYC).

Link to sampling protocol documentation: Documentation on sampling protocol works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year: The executed number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When

necessary and possible, the number of PSU planned but not executed (due to operational/logistical limitations) is rescheduled.
AR comment: Due to delay in the administrative procedure, the shortage of one scientific observer and severe meteorological conditions, number of PSU planned for the sampling year was adapted to the time window available for at-sea sampling.
Data capture
Means of data capture: Depending on the species, lengths are collected using measuring board/tape or callipers.
Data capture documentation: Documentation on data capture works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.
Quality checks documentation: Documentation on quality checks works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.
AR comment: No deviations.
Data storage
National database: NA.
International database: RDB/RDBES
Quality checks and data validation documentation: Quality checks and validation procedures are implemented:
(1) All samples are checked by a coordinator before the input of data;
(2) All data introduced in database is checked for syntax errors;
(3) A random check of 10% of the data is executed by inspecting the registered data for logical errors;
(4) Length distribution and effort samples are then connected with the market landings for future cross examinations.
AR comment: No deviations.
Sample storage
Storage description: Age structures are mostly kept in <i>eppendorfs</i> , placed in PCR tube storage racks at the laboratory and for an indefinite period. Access to samples is organised by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at https://datacollection.jrc.ec.europa.eu/ars .
Sample analysis: At sea sampling follows recommendations from several ICES working groups: WGCATCH (ices.dk) , WGDEEP (ices.dk) , WGEF (ices.dk) , WGHANSA (ices.dk) , WGBYC (ices.dk) .
AR comment: No deviations.

Data processing
<p>Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts/stock assessors during the preparation and analysis of data for expert/assessment working groups.</p> <p>Editing and imputation methods: Editing and imputation methods are developed by experts/stock assessors during the preparation and analysis of data for expert/assessment working groups.</p> <p>Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert/assessment working groups / regional coordination groups reports.</p> <p>Validation of the final dataset: Final datasets are validated by experts/stock assessors during expert/assessment working groups / regional coordination groups.</p>
AR comment: No deviations.

Azores At Sea ICCAT

MS: PRT
Region: Other regions
Sampling scheme identifier: Azores At Sea ICCAT
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial vessels)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>Sampling schemes (Work Plan - Table 2.5) aiming at sampling all catch fractions specific composition (including discards), both in number and volume, lengths, and biological variables (sex - only for elasmobranchs and crustaceans) of species captured by Azorean vessels operating in ICES 10.a.2. All captured species are sampled, including species listed in Table 1 of the EU-MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) although not specifically designed, is also covered within the sampling scheme (along with quantification of PETS observation effort).</p>
<p>Description of the population</p> <p>Population targeted: Lengths and biological variables of species captured by Azorean vessels operating in ICES 10.a.2 and licensed for the use of different fishing techniques, except for handliners targeting tuna (pole and line).</p> <p>Primary Sampling Unit (PSU): vessel*trip</p> <p>Population sampled: Lengths and biological variables of species captured by a subset of Azorean vessels operating in ICES 10.a.2 from a list of cooperative vessels for each fleet segment/gear/species assemblage that are willing and have logistics conditions (space and safety equipment) to take scientific observers onboard and registered at the main Azorean ports. The list of vessels for each fleet segment/metier is updated annually based on a combination of the results from the analysis through the algorithm developed and applied for previous year landings.</p> <p>Population sampled/not sampled per metier and sampling scheme:</p> <p>-Metier LLD_LPF</p> <p>Population sampled: List of active vessels using drifting longline targeting swordfish from the main (PDL - Ponta Delgada)</p> <p>Sampling frame identifier: AZS31 - LLD_LPF</p> <p>Population not sampled: Other drifting longlines targeting large pelagic fish operating from minor ports</p> <p>Sampling frame identifier: AZ32 - LLD_LPF_out of frame</p> <p>-Metier LHP_LPF</p> <p>Population not sampled: Handliners using pole and line targeting tuna species</p>

Sampling frame identifier: AZ35 - LHP_LPF_>12m and AZ36 – LHP_LPF_out of frame

Stratification: In order to improve sampling coverage through the year (by quarter) and in the most important auctions (main ports) to be sampled within each fleet segment/gear/species assemblage combination allocated by quarter proportionally to previous sampling year.

AR comment: No at-sea sampling occurred from Terceira Island fishing fleet (PVT and SMT ports).

Sampling design and protocols

Sampling design description: Scientific observers at sea attempt to sample a predefined number of fishing trips on board vessels selected from a set of cooperative vessels within each fleet segment/gear/species assemblage combination. These sampling schemes collect, on a haul-by-haul basis, comprehensive data on species composition (including incidental by-catch), length composition of all retained and discarded components of the catch, sex for elasmobranchs and crustaceans, reason for discarding and vitality of discarded specimens. Scientific observers on shore attempt to sample landings of vessels with a scientific observer on board.

At sea sampling schemes sample Catches (All fractions):

- a. The Azorean fleet is stratified by fleet segment, metier and time. Sampling effort is established as number of trips expected to be sampled in each fleet (~ metier) and allocated to different metiers and quarters proportionally to last year's effort and/or landings;
- b. Scientific observers sort the sample into catch fractions according to the crew's criteria;
- c. All hauls are sampled following established sampling priority levels (SPL):
SPL 1 – all discarded species lengths and retained species composition in volume;
SPL 2 – sub sample of retained target species lengths;
SPL 3 – sub sample of retained by-catch species lengths;
- d. Observation of PETS (Protected Endangered and Threatened Species) although not specifically designed, is also covered within the sampling scheme (along with quantification of PETS observation effort). PETS observation effort is conducted during the hauling fishing operation;
- e. Refusal rates are recorded.

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

Regional coordination: Not applicable.

Link to sampling design documentation: <https://www.iccat.int/en/iccatmanual.html>

<p>Compliance with international recommendations: Y. Sampling design in line with international recommendations (e.g., ICCAT Manual).</p> <p>Link to sampling protocol documentation: https://www.iccat.int/en/iccatmanual.html</p>
<p>AR comment: Sampling design and protocols in the scope of DCF not implemented due to delay in the administrative procedure, the shortage of one scientific observer and the fishery closure. Trips sampled occurred in the remit of COSTA (Consolidating Sea Turtle Conservation in the Azores) project funded by the Marine Turtle Conservation Fund of the US Fish and Wildlife Service, the Archie Carr Center for Sea Turtle Research and the Regional Directorate for Fisheries in Azores.</p>
<p>Sampling implementation</p>
<p>Recording of refusal rate: Y.</p> <p>Monitoring of sampling progress within the sampling year: The executed number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical limitations) is rescheduled.</p>
<p>AR comment: Sampling implementation in the scope of DCF not implemented due to delay in the administrative procedure, the shortage of one scientific observer and the fishery closure. Trips sampled occurred in the remit of COSTA (Consolidating Sea Turtle Conservation in the Azores) project funded by the Marine Turtle Conservation Fund of the US Fish and Wildlife Service, the Archie Carr Center for Sea Turtle Research and the Regional Directorate for Fisheries in Azores.</p>
<p>Data capture</p>
<p>Means of data capture: Depending on the species, lengths are collected using measuring board/tape or callipers.</p> <p>Data capture documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Quality checks documentation: Y. https://www.iccat.int/en/iccatmanual.html - Data Base and Manual.</p>
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: NA.</p> <p>International database: https://www.iccat.int/en/iccatmanual.html - Data Base.</p> <p>Quality checks and data validation documentation: Y. https://www.iccat.int/en/iccatmanual.html - Data Base and Manual.</p>
<p>AR comment: No deviations.</p>
<p>Sample storage</p>

Storage description: Age structures are mostly kept in <i>eppendorfs</i> , which are placed in PCR tube storage racks, at the laboratory and for indefinite period. Access to samples is organised by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at https://datacollection.jrc.ec.europa.eu/ars .	
Sample analysis: https://www.iccat.int/en/iccatmanual.html	
AR comment: No deviations.	
Data processing	
Evaluation of data accuracy (bias and precision):	Y.
https://www.iccat.int/en/submitSTAT.html (Submitting Stat Data)	
Editing and imputation methods: https://www.iccat.int/en/iccatmanual.html	
Quality document associated to a dataset: https://www.iccat.int/en/submitSTAT.html	
Validation of the final dataset: Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT.	
AR comment: No deviations.	

Azores At Sea NA

MS: PRT
Region: Outermost region
Sampling scheme identifier: Azores At Sea NA
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial vessels)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>Sampling schemes (Work Plan - Table 2.5) aiming at sampling all catch fractions specific composition (including discards), both in number and volume, lengths, and biological variables (sex - only for elasmobranchs and crustaceans) of species captured by Azorean vessels operating in ICES 10.a.2. All captured species are sampled, including species listed in Table 1 of the EU-MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) although not specifically designed, is also covered within the sampling scheme (along with quantification of PETS observation effort).</p>
Description of the population
<p>Population targeted: Lengths and biological variables of species captured by Azorean vessels operating in ICES 10.a.2 and licensed for the use of set gillnets.</p> <p>Primary Sampling Unit (PSU): vessel*trip</p> <p>Population sampled: Lengths and biological variables of species captured by a subset of Azorean vessels operating in ICES 10.a.2 from a list of cooperative vessels for each fleet segment/gear/species assemblage that are willing and have logistics conditions (space and safety equipment) to take scientific observers onboard and registered at the main Azorean ports. The list of vessels for each fleet segment/metier is updated annually based on a combination of the results from the analysis through the algorithm developed and applied for previous year landings.</p> <p>Population sampled/not sampled per metier and sampling scheme:</p> <p>-Metier GNS_MPD</p> <p>Population sampled: List of active set gillnetters targeting mixed pelagic and demersal species</p> <p>Sampling frame identifier: AZS23 - GNS_MPD</p> <p>Population not sampled: Other vessels operating with set gillnets</p> <p>Sampling frame identifier: AZ55 - GNS_MPD_out of frame</p> <p>Stratification: In order to improve sampling coverage through the year (by quarter) and in the most important auctions (main ports) to be sampled within each fleet segment/gear/species assemblage combination allocated by quarter proportionally to previous sampling year.</p>

AR comment: No at-sea sampling occurred from Terceira Island fishing fleet (PVT and SMT ports).

Sampling design and protocols

Sampling design description: Scientific observers at sea attempt to sample a predefined number of fishing trips on board vessels selected from a set of cooperative vessels within each fleet segment/gear/species assemblage combination. These sampling schemes collect, on a haul-by-haul basis, comprehensive data on species composition (including incidental by-catch), length composition of all retained and discarded components of the catch, sex for elasmobranchs and crustaceans, reason for discarding and vitality of discarded specimens. Scientific observers on shore attempt to sample landings of vessels with a scientific observer on board.

At sea sampling schemes sample Catches (All fractions):

- a. The Azorean fleet is stratified by fleet segment, metier and time. Sampling effort is established as number of trips expected to be sampled in each fleet (~ metier) and allocated to different metiers and quarters proportionally to last year's effort and/or landings;
- b. Scientific observers sort the sample into catch fractions according to the crew's criteria;
- c. All hauls are sampled following established sampling priority levels (SPL):
SPL 1 – all discarded species lengths and retained species composition in volume;
SPL 2 – sub sample of retained target species lengths;
SPL 3 – sub sample of retained by-catch species lengths;
- d. Observation of PETS (Protected Endangered and Threatened Species) although not specifically designed, is also covered within the sampling scheme (along with quantification of PETS observation effort). PETS observation effort is conducted during the hauling fishing operation;
- e. Refusal rates are recorded.

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

Regional coordination: Not applicable.

Link to sampling design documentation: Documentation on sampling design works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

Compliance with international recommendations: Y (ICES WGCATCH and ICES WGBYC).

Link to sampling protocol documentation: Documentation on sampling protocol works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.

AR comment: Due to delay in the administrative procedure, the shortage of one scientific observer and severe meteorological conditions, number of PSU planned for the sampling year was adapted to the time window available for at-sea sampling.
Sampling implementation
<p>Recording of refusal rate: Y.</p> <p>Monitoring of sampling progress within the sampling year: The executed number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical limitations) is rescheduled.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Depending on the species, lengths are collected using measuring board/tape or callipers.</p> <p>Data capture documentation: Documentation on data capture works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.</p> <p>Quality checks documentation: Documentation on quality checks works as an internal working paper, disclosed to all scientific observers assigned and under constantly improving.</p>
AR comment: No deviations.
Data storage
<p>National database: NA.</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors; (4) Length distribution and effort samples are then connected with the market landings for future cross examinations.
AR comment: No deviations.
Sample storage
<p>Storage description: Age structures are mostly kept in <i>eppendorfs</i>, which are placed in PCR tube storage racks, at the laboratory and for indefinite period. Access to samples is organised by species and sampling date. Samples are not stored under the auspices/responsibility of any international organization. Quantities of sampled stored by species/stock, geographic sub-area and by year can be found at https://datacollection.jrc.ec.europa.eu/ars.</p>

Sample analysis: At sea sampling follows recommendations from several ICES working groups: [WGCATCH \(ices.dk\)](#), [WGDEEP \(ices.dk\)](#), [WGEF \(ices.dk\)](#), [WGHANSA \(ices.dk\)](#), [WGBYC \(ices.dk\)](#).

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Mainland On Shore ICES

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Mainland On Shore ICES
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling schemes (Work Plan – Table 2.5) aiming at sampling length of species and biological variables (sex, maturity of selected species in Work Plan – Table 2.2) landed at ports by Portuguese vessels operating in ICES 27.9.a. All landed species (except <i>Trachurus trachurus</i>) are sampled, including species listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the “Landings” fractions are sampled.
Description of the population
Population targeted: lengths of species and biological variables (sex, maturity of selected species in Work Plan - Table 2.2) landed at port by Portuguese vessels operating in ICES 27.9.a. Population studied: lengths of species and biological variables (sex, maturity of selected species in Work Plan - Table 2.2) landed at port by a subset of Portuguese vessels operating in ICES 27.9.a from a fleet segment (~metier), based on a combination of gear licences and the main species landed in previous year. Primary Sampling Unit (PSU): port*day Population sampled: Population sampled / not sampled per metier and sampling scheme: -Metier FPO_MOL: Population sampled: Main mainland national ports of this metier: VIANA DO CASTELO, POVOA DO VARZIM, MATOSINHOS, AVEIRO, NAZARE, PENICHE, COSTA DA CAPARICA, SESIMBRA, SETUBAL, SINES, SAGRES, LAGOS, PORTIMAO, QUARTEIRA, OLHAO, SANTA LUZIA Sampling frame identifier: PTOS1 - FPO_MOL _ Main ports _ ICES 27.9.a

Population not sampled:

Minor mainland national ports of this metier.

Sampling frame identifier: PTOS2 - FPO_MOL _ Minor ports _ ICES 27.9.a

-Metier GNS_GTR:

Population sampled:

Main mainland national ports of this metier: VIANA DO CASTELO, POVOA DO VARZIM, MATOSINHOS, AVEIRO, FIGUEIRA DA FOZ, NAZARE, PENICHE, COSTA DA CAPARICA, SESIMBRA, SETUBAL, SINES, SAGRES, LAGOS, PORTIMAO, QUARTEIRA, OLHAO, VRSA

Sampling frame identifier: PTOS3 - GNS_GTR_DEF _ Main ports _ ICES 27.9.a

Population not sampled:

Minor mainland national ports of this metier.

Sampling frame identifier: PTOS4 - GNS_GTR_DEF _ Minor ports _ ICES 27.9.a

-Metier LLS_DEF:

Population sampled:

Main mainland national ports of this metier: NAZARE, PENICHE, COSTA DA CAPARICA, SESIMBRA, SETUBAL, SINES, SAGRES, LAGOS, PORTIMAO, QUARTEIRA, OLHAO

Sampling frame identifier: PTOS5 - LLS_DEF _ Main ports _ ICES 27.9.a

Population not sampled:

Minor mainland national ports of this metier.

Sampling frame identifier: PTOS6 - LLS_DEF _ Minor ports _ ICES 27.9.a

-Metier LLS_DWS:

Population sampled:

Single main mainland national port of this metier: SESIMBRA.

Sampling frame identifier: PTOS7 - LLS_DWS _ Single main port _ ICES 27.9.a

Population not sampled:

Minor mainland national ports of this metier: no ports

Sampling frame identifier: PTOS8 - LLS_DWS _ Minor ports _ ICES 27.9.a

-Metier OTB_DEF:

Population sampled:

Main mainland national ports of this metier: MATOSINHOS, AVEIRO, FIGUEIRA DA FOZ, NAZARE, PENICHE, SESIMBRA, SINES, PORTIMAO, OLHAO

Sampling scheme identifier: PTOS9 - OTB_DEF _ Main ports _ ICES 27.9.a

Population not sampled:

Minor mainland national ports of this metier: no ports

Sampling frame identifier: PTOS10 - OTB_DEF _ Minor ports _ ICES 27.9.a

-Metier OTB_CRU:

Population sampled:

Single main mainland national port of this metier: VRSA

Sampling scheme identifier: PTOS11 - OTB_CRU _ Single main port _ ICES FU 28-29

Population not sampled:

<p>Minor mainland national ports of this metier: no ports</p> <p>Sampling frame identifier: PTOS12 - OTB_CRU _ Minor ports _ ICES FU 28-29</p> <p>-Metier PS_SPF:</p> <p>Population sampled:</p> <p>Main mainland national ports of this metier: VIANA DO CASTELO, POVOA DO VARZIM, MATOSINHOS, AVEIRO, FIGUEIRA DA FOZ, NAZARE, PENICHE, SESIMBRA, SETUBAL, SINES, SAGRES, LAGOS, PORTIMAO, QUARTEIRA, OLHAO</p> <p>Sampling frame identifier: PTOS13 - PS_SPF _ Main ports _ ICES 27.9.a</p> <p>Population not sampled:</p> <p>Minor mainland national ports of this metier: no ports</p> <p>Sampling frame identifier: PTOS14 - PS_SPF _ Minor ports _ ICES 27.9.a</p> <p>-Metier TBB_CRU:</p> <p>Population sampled:</p> <p>Main mainland national ports of this metier: MATOSINHOS, AVEIRO, FIGUEIRA DA FOZ</p> <p>Sampling frame identifier: PTOS15 - TBB_MCD _ Main ports _ ICES 27.9.a</p> <p>Population not sampled:</p> <p>Minor mainland national ports of this metier.</p> <p>Sampling frame identifier: PTOS16 - TBB_MCD _ Minor ports _ ICES 27.9.a</p> <p>Stratification: Stratification is used to improve sampling coverage through the year (by quarter) and along the Portuguese coast (by port).</p>
AR comment: No deviations.
Sampling design and protocols
<p>Sampling design description:</p> <p>On shore sampling schemes sample Landings (All fractions).</p> <p>a) The Portuguese fleet is stratified by fleet (~metier), auction and quarter. Following the DCF requirements, less significant fleets (~metiers) are not sampled (e.g. dredges, beach-seines). Annual sampling effort (number of planned PSUs = port*days = onshore events) is fixed and is allocated to the different fleets (~metiers) based on landings from previous reference years (weight/value criteria).</p> <p>b) For each fleet (~metier), sampling effort (number of port*day = onshore events = PSUs) is allocated to ports and quarters based on landings from previous reference years. For each fleet (~metier), each onshore event (port*day = PSU) is selected by UPSWOR.</p> <p>c) In every port*day (=onshore event = PSUs), observers attempt to sample a predefined number of landing events (~fishing trips), that are randomly selected (by SRSWOR) from a list of all landing events awaiting auction. This list includes the name of each vessel and the commercial species, commercial size category and weight of each of its boxes. Each landing</p>

event generally corresponds to the landings of one fishing trip. A minor proportion of landing events may not be present in the selection list at selection time when sampling starts.

d) In each landing event (~fishing trip), the observers aim to sample every combination of commercial species and commercial size category (by Census).

e) Within each combination of commercial species * commercial size category, the observers select 1 box haphazardly for length sampling of species. When there are very few fish from a species in the box, observers take more boxes until the length composition of the species is well defined.

f) When different species are present within a box, observers select them all for length sampling.

g) For selected species (Work Plan – Table 2.2) biological variables are sampled in situ.

h) Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the “Landings” fractions are sampled. Within a sampled commercial fishing trip, PETS observation effort is done in all boxes sampled for other species (protocol described in topics a-g).

During 2022, fish length measurements will be also recorded in some auctions, using on an experimental basis an electronic system composed by a local unit for automatic image acquisition of fish boxes and a remote database to record the processed images (Fishmetrics), which allows to conclude fish length measurements at a later stage with an automated process.

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

Regional coordination: N.

Link to sampling design documentation:

www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2014/WKRDB/01%20WKRDB%202014-1%20Report%20FINAL.pdf

Documentation will be updated in 2022-2024.

Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGCATCH (Working Group on Commercial Catches).

Link to sampling protocol documentation: Documentation will be developed in 2022-2024.

AR comment: No deviations.

Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: The number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Biological data is collected with measuring board/tape/calliper (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation on data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).</p> <p>Quality checks documentation: Quality of data capture is checked yearly before response to data calls (e.g. unexpected species in a given metier/area, unexpected age for a given species length, unexpected maturity stage for a given species length, unexpected biological variable for a given species). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
AR comment: No deviations.
Data storage
<p>National database: http://nautilus.ipma.pt/</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: Quality of data storage is checked yearly before response to data calls (e.g. if all data captured is stored in the national database, including different levels of data such as level of fishing trip, haul, sample, individual, etc.). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
AR comment: No deviations.
Sample storage
<p>Storage description:</p> <p>Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.</p>

Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.

Sample analysis:

Sample analysis follows national and international protocols (e.g. from WG and benchmark reports) for age reading, maturity stage, histology.

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Mainland On Shore Species Focus Size Category ICES

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Mainland On Shore Species Focus Size Category ICES
Sampling scheme type: Commercial by category
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling schemes (Work Plan – Table 2.5) aiming at sampling length and biological variables (age, weight, sex, maturity) of fish landed at ports by Portuguese vessels operating in ICES 27.9.a. Only one species (<i>Trachurus trachurus</i>) which is included in the species listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is not covered within the sampling scheme since only the “Landings” fractions of one species (<i>Trachurus trachurus</i>) are sampled.
Description of the population
Population targeted: lengths and biological variables (age, weight, sex, maturity) of fish (<i>Trachurus trachurus</i>) landed at port by Portuguese vessels operating in ICES 27.9.a. Population studied: lengths and biological variables (age, weight, sex, maturity) of fish (<i>Trachurus trachurus</i>) landed at port by Portuguese vessels operating in ICES 27.9.a and assigned a commercial size category. Primary Sampling Unit (PSU): port*day Population sampled: Main mainland national ports of this species: MATOSINHOS, AVEIRO, FIGUEIRA DA FOZ, cluster NW (VIANA DO CASTELO, POVOA DO VARZIM, MIRA, FURADOURO, VAGUEIRA, TORREIRA, ESPINHO), NAZARE, SESIMBRA, PENICHE, cluster SW (SINES, SETUBAL, COSTA DA CAPARICA, FONTE DA TELHA), PORTIMAO, cluster S1 (OLHAO, LAGOS, QUARTEIRA), cluster S2 (SAGRES, VRSA) Sampling frame identifier: PTOS17 - SF_SC_HOM _ Main ports _ ICES 27.9.a Population not sampled: Minor mainland national ports of this species. Sampling frame identifier: PTOS18 - SF_SC_HOM _ Minor ports _ ICES 27.9.a

Stratification: Stratification is used to improve sampling coverage through the year (by quarter) and along the Portuguese coast (by port).

AR comment: No deviations.

Sampling design and protocols

Sampling design description:

On shore sampling schemes sample Landings (All fractions).

a) Annual sampling effort (number of planned PSUs = port*days = onshore events) is fixed.

b) Sampling effort (number of port*day = onshore events = PSUs) is allocated to ports and quarters based on landings from previous reference years. Each onshore event (port*day = PSU) is selected by UPSWOR.

c) In every port*day, observers attempt to sample every commercial size category of *Trachurus trachurus*, by randomly selecting 1 box from each commercial size category, from a list of all landings awaiting auction. This list includes the name of each vessel and the commercial species, commercial size category and weight of each of its boxes.

d) Within each box, the observers randomly select a predefined number of individuals which are sampled in the laboratory for biological variables (length, weight, age, sex ratio and sexual maturity).

e) Observation of PETS (Protected Endangered and Threatened Species) is not covered within the sampling scheme since only the “Landings” fractions of one species (*Trachurus trachurus*) are sampled.

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

Regional coordination: N.

Link to sampling design documentation:

Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. *ICES Journal of Marine Science*, fsab151, <https://doi.org/10.1093/icesjms/fsab151>

Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGCATCH (Working Group on Commercial Catches).

Link to sampling protocol documentation: Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. *ICES Journal of Marine Science*, fsab151, <https://doi.org/10.1093/icesjms/fsab151>

AR comment: No deviations.
Sampling implementation
Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.
Monitoring of sampling progress within the sampling year: The number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.
AR comment: No deviations.
Data capture
Means of data capture: Biological data is collected with measuring board (variable length) and scale (variable weight).
Data capture documentation: Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. <i>ICES Journal of Marine Science</i> , fsab151, https://doi.org/10.1093/icesjms/fsab151
Quality checks documentation: Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. <i>ICES Journal of Marine Science</i> , fsab151, https://doi.org/10.1093/icesjms/fsab151
AR comment: No deviations.
Data storage
National database: http://nautilus.ipma.pt/
International database: RDB/RDBES
Quality checks and data validation documentation: Quality of data storage is checked yearly before response to data calls (e.g. if all data captured is stored in the national database, including different levels of data such as level of fishing trip, haul, sample, individual, etc.). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).
AR comment: No deviations.
Sample storage
Storage description:

Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.

Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.

Sample analysis:

Sample analysis follows national and international protocols (e.g. from WG and benchmark reports) for age reading, maturity stage, histology.

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. *ICES Journal of Marine Science*, fsab151, <https://doi.org/10.1093/icesjms/fsab151>

Editing and imputation methods: Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. *ICES Journal of Marine Science*, fsab151, <https://doi.org/10.1093/icesjms/fsab151>

Quality document associated to a dataset: Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. *ICES Journal of Marine Science*, fsab151, <https://doi.org/10.1093/icesjms/fsab151>

Validation of the final dataset: Azevedo, M., C. Silva, J.H. Vølstad. 2021. Onshore biological sampling of landings by species and size category within auction sites can be more efficient than trip-based concurrent sampling. *ICES Journal of Marine Science*, fsab151, <https://doi.org/10.1093/icesjms/fsab151>

AR comment: No deviations.

Mainland At Sea ICES

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Mainland At Sea ICES
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>Sampling schemes (Work Plan - Table 2.5) aiming at sampling catch (discards + landings) composition, volume, length of species and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by Portuguese vessels operating in ICES 27.9.a. All species sampled are listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).</p>
Description of the population
<p>Population targeted:</p> <p>Population: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in ICES 27.9.a.</p> <p>Population targeted: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels with length overall >12m operating in ICES 27.9.a.</p> <p>Population studied: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by a subset of Portuguese vessels with length overall >18m operating in ICES 27.9.a from a fleet segment (~metier), based on a combination of gear licences and the main species landed in previous year.</p> <p>Primary Sampling Unit (PSU): fishing trip</p> <p>Population sampled:</p> <p>Population sampled / not sampled per metier and sampling scheme:</p> <p>-Metier GNS_GTR:</p> <p>Population sampled: Vessels >12m</p> <p>Sampling frame identifier: PTAS23 - GNS_GTR_DEF _ ICES 27.9.a _ in sampling frame</p>

Population not sampled: Vessels <12m

Sampling frame identifier: PTAS24 - GNS_GTR_DEF _ ICES 27.9.a _ out of sampling frame

-Metier LLS_DWS:

Population sampled: Vessels >12m

Sampling frame identifier: PTAS25 - LLS_DWS _ ICES 27.9.a _ in sampling frame

Population not sampled: Vessels <12m

Sampling frame identifier: PTAS26 - LLS_DWS _ ICES 27.9.a _ out of sampling frame

-Metier OTB_DEF:

Population sampled: Vessels >24m

Sampling frame identifier: PTAS27 - OTB_DEF _ ICES 27.9.a _ in sampling frame

Population not sampled: Vessels <24m

Sampling frame identifier: PTAS28 - OTB_DEF _ ICES 27.9.a _ out of sampling frame

-Metier OTB_CRU:

Population sampled: Vessels >12m

Sampling frame identifier: PTAS29 - OTB_CRU _ ICES FU 28-29 _ in sampling frame

Population not sampled: Vessels <12m

Sampling frame identifier: PTAS30 - OTB_CRU _ ICES FU 28-29 _ out of sampling frame

-Metier PS_SPF:

Population sampled: Vessels >12m

Sampling frame identifier: PTAS31 - PS_SPF _ ICES 27.9.a _ in sampling frame

Population not sampled: Vessels <12m

Sampling frame identifier: PTAS32 - PS_SPF _ ICES 27.9.a _ out of sampling frame

-Metier TBB_CRU:

Population sampled: All vessels

Sampling frame identifier: PTAS33 - TBB_MCD _ ICES 27.9.a _ in sampling frame

Population not sampled:

Sampling frame identifier: PTAS34 - TBB_MCD _ ICES 27.9.a _ out of sampling frame

Stratification: Stratification is used to improve sampling coverage through the year (by quarter) and along the Portuguese coast (by area).

AR comment: No deviations.

Sampling design and protocols

Sampling design description:

At sea sampling schemes sample Catches (All fractions).

a) The Portuguese fleet is stratified by fleet (~metier), area and quarter. Following the DCF requirements, less significant fleets (~metiers) are not sampled (e.g. dredges, beach-seines). Annual sampling effort (number of planned PSUs = fishing trips) is fixed and is allocated to the different fleets (~metiers) based on a Neyman allocation (metiers OTB_DEF and OTB_CRU), monthly frequency (metiers LLS_DWS, TBB_CRU) or quarterly frequency (metiers GNS_GTR, PS_SPF).

b) For each fleet (~metier), sampling effort (number of fishing trips) is allocated to areas and quarters based on effort and/or landings from previous reference years. For each fleet (~metier), each temporal event (week) is selected by SRSWR, vessel is selected by SRSWR and fishing trip (= PSU) is selected by SRSWOR.

c) Scientific observers sort the sample into catch fractions according to the crew's criteria in the sampled haul. The onboard sampling procedure differs between active (OTB, TBB and PS) and fixed metiers/gears (GNS, GTR, LLS_DWS) (Prista *et al.*, 2012; Jardim *et al.* 2012, Feijó *et al.*, 2012).

Briefly, in active metiers/gears (OTB_DEF, OTB_CRU, TBB_CRU) haul selection is systematic (odd or even) after a random choice of the starting haul between first or second. In PS_SPF all hauls are selected. For each haul selected for sampling, and before the catch is sorted by the crew, the scientific observer randomly selects a sample. Each sample is sorted and weighed by species and catch fraction. In the sample, individuals are sampled for length, and a sub sample is selected for sampling (in situ or in laboratory) of other biological variables (age, weight, sex, maturity) of selected species (Work Plan – Table 2.2). Landed volume is estimated by the skipper. Catch volume is estimated independently from skipper's opinion, based on the relative proportion between discard and landing fractions in the sample taken from the catch and raised by total landings.

Briefly, in passive metiers (GNS_GTR, LLS_DWS) all hauls are sampled, sampling is done per gear segment during hauling of the gear, and species number and length are collected but not weights.

d) Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).

Within a sampled commercial fishing trip operating active metiers/gears (OTB_DEF, OTB_CRU, TBB_CRU, PS_SPF), PETS observation effort is the same as for other species - i.e. it is done in samples of the catch taken following the protocol described in topics a-c;

and additionally in the opening of the net (OTB_DEF, OTB_CRU, TBB_CRU, PS_SPF) and in the hauling of the net (PS_SPF).

Within a sampled commercial fishing trip operating passive metiers/gears (GNS, GTR, LLS_DWS), PETS observation effort is the same as for other species - i.e. it is done during hauling of the gear following the protocol described in topics a-c.

References:

Prista, N.; Jardim, E.; Fernandes, A.C.; Silva, D.; Ferreira, A. L.; Abreu, P.; Fernandes, P., 2012. Manual de procedimentos a bordo: artes fundeadas. *Relat. Cient. Téc. Inst. Invest. Pescas Mar*, nº 56, 23 p. + Anexos.

Jardim, E.; Prista, N.; Fernandes, A.C.; Silva, D.; Ferreira, A. L.; Abreu, P.; Fernandes, P., 2012. Manual de procedimentos a bordo: arrasto de fundo com portas. *Relat. Cient. Téc. Inst. Invest. Pescas Mar*, nº 55, 20 p. + Anexos

Feijó, D.; Marçalo, A.; Wise, L.; Silva, A., 2012. Protocolo de Amostragem a Bordo da Pescado Cerco. *Relat. Cient. Téc. IPIMAR, Série digital*, nº 57, 11 p + X Anexos.

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

Regional coordination: N.

Link to sampling design documentation: Fernandes, A. C.; Prista N.; Azevedo. M. (2017). Discards from the Portuguese bottom otter trawl operating in ICES Division 27.9.a (2004-2015). *Relat.Cient.Tec. do IPMA* (<http://ipma.pt>) nº18. 18p + Anexos

Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGCATCH (Working Group on Commercial Catches).

Link to sampling protocol documentation:
<https://www.ipma.pt/pt/publicacoes/pescas/index.jsp?page=rel.cientificos.12.xml> (reports 55, 56 and 57)

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y.

Monitoring of sampling progress within the sampling year: The number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.

AR comment: No deviations.

Data capture
<p>Means of data capture: Biological data is collected with measuring board/tape/calliper (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation on quality of data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).</p> <p>Quality checks documentation: Quality of data capture is checked yearly before response to data calls (e.g. unexpected species in a given metier/area, unexpected age for a given species length, unexpected maturity stage for a given species length, unexpected biological variable for a given species). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
AR comment: No deviations.
Data storage
<p>National database: http://nautilus.ipma.pt/</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: Quality of data storage is checked yearly before response to data calls (e.g. if all data captured is stored in the national database, including different levels of data such as level of fishing trip, haul, sample, individual, etc.). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
AR comment: No deviations.
Sample storage
<p>Storage description:</p> <p>Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Sample analysis:</p> <p>Sample analysis follows national and international protocols (e.g. from WG and benchmark reports) for age reading, maturity stage, histology.</p>
AR comment: No deviations.
Data processing

Evaluation of data accuracy (bias and precision):

Bottom trawl fleet segments: Fernandes, A. C.; Prista N.; Azevedo. M. (2017). Discards from the Portuguese bottom otter trawl operating in ICES Division 27.9.a (2004-2015). Relat.Cient.Tec. do IPMA (<http://ipma.pt>) nº18. 18p + Anexos

Other fleet segments: Documentation will be developed in 2022-2024.

Editing and imputation methods:

Bottom trawl fleet segments: Fernandes, A. C.; Prista N.; Azevedo. M. (2017). Discards from the Portuguese bottom otter trawl operating in ICES Division 27.9.a (2004-2015). Relat.Cient.Tec. do IPMA (<http://ipma.pt>) nº18. 18p + Anexos

Other fleet segments: Documentation will be developed in 2022-2024.

Quality document associated to a dataset:

Bottom trawl fleet segments: Fernandes, A. C.; Prista N.; Azevedo. M. (2017). Discards from the Portuguese bottom otter trawl operating in ICES Division 27.9.a (2004-2015). Relat.Cient.Tec. do IPMA (<http://ipma.pt>) nº18. 18p + Anexos

Other fleet segments: Documentation will be developed in 2022-2024.

Validation of the final dataset: Data quality checks are carried out for trawl fleets (~metiers): a semi-automated quality assurance procedure was designed in R to detect errors and is run yearly before response to data calls and data analysis.

AR comment: No deviations.

Mainland At Sea ICES 1,2

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Mainland At Sea ICES 1,2
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling schemes (Work Plan - Table 2.5) aiming at sampling catch (discards + landings) composition, volume, length (of selected species in Work Plan – Table 2.1) and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by Portuguese vessels operating in ICES 27.1 and 27.2. Sampling includes species listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).
Description of the population
Population targeted: Population and population targeted: lengths (of selected species in Work Plan – Table 2.1) and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in ICES 27.1 and 27.2. Population studied: lengths (of selected species in Work Plan – Table 2.1) and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by a subset of Portuguese vessels operating in ICES 27.1 and 27.2 from a fleet segment (~metier), based on a combination of gear licences and the main species landed in previous year. Primary Sampling Unit (PSU): fishing trip Population sampled: Population sampled / not sampled per metier and sampling scheme: -Metier OTB_DEF: Population sampled: All vessels Sampling frame identifier: PTAS39 - OTB_DEF _ ICES 27.1,27.2 _ in sampling frame

<p>Population not sampled: Sampling frame identifier: PTAS40 - OTB_DEF _ ICES 27.1,27.2 _ out of sampling frame</p> <p>-Metier OTM_DEF: Population sampled: All vessels Sampling frame identifier: PTAS41 - OTM_DEF _ ICES 27.1,27.2 _ in sampling frame</p> <p>Population not sampled: Sampling frame identifier: PTAS42 - OTM_DEF _ ICES 27.1,27.2 _ out of sampling frame</p> <p>Metiers are sampled in alternate years, since only one trip is sampled per year in ICES 27.1 and 27.2.</p> <p>Stratification: Stratification is used to improve spatial sampling coverage (by ICES Division).</p>
AR comment: No deviations.
Sampling design and protocols
<p>Sampling design description:</p> <p>At sea sampling schemes sample Catches (All fractions).</p> <p>a) The Portuguese fleet is stratified by fleet (~metier), area and quarter. Two trawl metiers operate in ICES 27.1 and 27.2: OTM_DEF and OTB_DEF. Annual sampling effort (number of planned PSUs = fishing trips) is fixed and only 1 trip is allocated to either metier OTB_DEF or OTM_DEF.</p> <p>b) Vessel is selected by SRSWR and fishing trip (= PSU) is selected by SRSWOR.</p> <p>c) Haul selection is random. For each haul selected for sampling, and before the catch is sorted by the crew, the scientific observer randomly selects a sample of two selected species (Work Plan – Table 2.1), usually one target species and one bycatch species. Each sample is weighed and individuals are sampled for length, and a sub sample is selected for sampling of other biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2).</p> <p>d) Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).</p>

PETS observation effort is the same as for other species - i.e. it is done in samples of the catch taken following the protocol described in topics a-c; and additionally in the opening of the net.

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

Regional coordination: N.

Link to sampling design documentation: Documentation will be developed in 2022-2024.

Compliance with international recommendations: Y. Sampling design in line with international recommendations, e.g. from ICES WGCATCH (Working Group on Commercial Catches).

Link to sampling protocol documentation: Documentation will be developed in 2022-2024.

AR comment:

The Work Plan refers that “PETS observation effort is the same as for other species - i.e. it is done in samples of the catch taken following the protocol described in topics a-c; and additionally in the opening of the net.” but it was not possible to implement this sampling protocol and the Work Plan text should be “PETS observation effort is the same as for other species - i.e. it is done in samples of the catch taken following the protocol described in topics a-c; and additionally during sorting of catch”.

Efforts will be made in 2023 to implement observation effort for PETS incidental bycatch during hauling of the net into the vessel and after opening of the net inside the vessel, and not only during sorting of the catch.

Sampling implementation

Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.

Monitoring of sampling progress within the sampling year: NA. One fishing trip is sampled per year.

AR comment: No deviations.

Data capture

Means of data capture: Biological data is collected with measuring board/tape/calliper (variable length) and scale (variable weight).

Data capture documentation: Documentation on data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).

<p>Quality checks documentation: Quality of data capture is checked yearly before response to data calls (e.g. unexpected species in a given metier/area, unexpected age for a given species length, unexpected maturity stage for a given species length, unexpected biological variable for a given species). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: http://nautilus.ipma.pt/.</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: Quality of data storage is checked yearly before response to data calls (e.g. if all data captured is stored in the national database, including different levels of data such as level of fishing trip, haul, sample, individual, etc.). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).</p>
<p>AR comment: No deviations.</p>
<p>Sample storage</p>
<p>Storage description:</p> <p>Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Sample analysis:</p> <p>Sample analysis follows national and international protocols (e.g. from WG and benchmark reports) for age reading, maturity stage, histology.</p>
<p>AR comment: No deviations.</p>
<p>Data processing</p>
<p>Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p>

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Mainland At Sea NAFO

MS: PRT
Region: Other regions
Sampling scheme identifier: Mainland At Sea NAFO
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.5) aiming at sampling catch (discards + landings) composition, volume, length (of selected species in Work Plan – Table 2.1) and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by Portuguese vessels operating in NAFO subarea 3. Sampling includes species listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).
Description of the population
Population targeted: Population and population targeted: lengths (of selected species in Work Plan – Table 2.1) and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by Portuguese vessels operating in NAFO subarea 3. Population studied: lengths (of selected species in Work Plan – Table 2.1) and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by a subset of Portuguese vessels operating in NAFO subarea 3 from a fleet segment (~metier), based on a combination of gear licences and the main species landed in previous year. Primary Sampling Unit (PSU): fishing trip Population sampled: Population sampled / not sampled per metier and sampling scheme: -Metier OTB_DEF: Population sampled: All vessels Sampling frame identifier: PTAS43 - OTB_DEF _ NAFO _ in sampling frame

<p>Population not sampled: Sampling frame identifier: PTAS44 - OTB_DEF _ NAFO _ out of sampling frame</p> <p>Stratification: Stratification is used to improve spatial sampling coverage (by NAFO Division).</p>
<p>AR comment: No deviations.</p>
<p>Sampling design and protocols</p>
<p>Sampling design description:</p> <p>At sea sampling schemes sample Catches (All fractions).</p> <p>a) The Portuguese fleet is stratified by fleet (~metier), area and quarter. One trawl metier operates in NAFO subarea 3: OTB_DEF. Annual sampling effort (number of planned PSUs = fishing trips) is fixed.</p> <p>b) Vessel is selected by SRSWR and fishing trip (= PSU) is selected by SRSWOR.</p> <p>c) Haul selection is random. For each haul selected for sampling, and before the catch is sorted by the crew, the scientific observer randomly selects a sample of two selected species (Work Plan - Table 2.2), usually one target species and one bycatch species. Each sample is weighed and individuals are sampled for length, and sub sample is selected for sampling of other biological variables (age, weight, sex, maturity) of selected species (Work Plan – Table 2.2).</p> <p>d) Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).</p> <p>PETS observation effort is the same as for other species - i.e. it is done in samples of the catch taken following the protocol described in topics a-c; and additionally in the opening of the net.</p> <p>Is the sampling design compliant with the 4S principle?: Y.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation:</p> <p>https://www.nafo.int/Fisheries/MCS/ObserverScheme</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations (e.g. NAFO)</p> <p>Link to sampling protocol documentation:</p> <p>https://www.nafo.int/Fisheries/MCS/ObserverScheme</p>

https://www.nafo.int/Portals/0/EXCEL/Fisheries/AnnexIIM_ObserverReportForm.xlsx

AR comment:

The Work Plan refers that “PETS observation effort is the same as for other species - i.e. it is done in samples of the catch taken following the protocol described in topics a-c; and additionally in the opening of the net.” but it was not possible to implement this sampling protocol and the Work Plan text should be “PETS observation effort is the same as for other species - i.e. it is done in samples of the catch taken following the protocol described in topics a-c; and additionally during sorting of catch”.

Efforts will be made in 2023 to implement observation effort for PETS incidental bycatch during hauling of the net into the vessel and after opening of the net inside the vessel, and not only during sorting of the catch.

Sampling implementation

Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.

Monitoring of sampling progress within the sampling year: NA. One fishing trip is sampled per year.

AR comment:

No deviations.

There is a mistake in the WP which will be amended in the next WP:

“Monitoring of sampling progress within the sampling year:” should be “The implementation of PSU per year is monitored throughout the year. When necessary and possible, the PSUs planned but not executed (due to operational/logistical constraints) are rescheduled.”

Data capture

Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).

Data capture documentation: Documentation on data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).

Specificities for NAFO data capture can be found in:
https://www.nafo.int/Portals/0/EXCEL/Fisheries/AnnexIIM_ObserverReportForm.xlsx

Quality checks documentation: Quality of data capture is checked yearly before response to data calls (e.g. unexpected species in a given metier/area, unexpected age for a given species length, unexpected maturity stage for a given species length, unexpected biological

variable for a given species). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).

AR comment: No deviations.

Data storage

National database: <http://nautilus.ipma.pt/>

International database: NA.

Quality checks and data validation documentation: Quality of data storage is checked yearly before response to data calls (e.g. if all data captured is stored in the national database, including different levels of data such as level of fishing trip, haul, sample, individual, etc.). This includes automatic and semi-automatic data quality checks procedures, at different stages (during and after data entry in the national database).

AR comment: No deviations.

Sample storage

Storage description:

Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.

Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.

Sample analysis:

Sample analysis follows national and international protocols (e.g. from WG and benchmark reports) for age reading, maturity stage, histology.

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset:

Data is submitted to quality check to meet NAFO requirements and is validated by NAFO.

Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Mainland At Sea IOTC

MS: PRT
Region: Other regions
Sampling scheme identifier: Mainland At Sea IOTC
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Table 2.5) aiming at sampling catch (discards + landings) composition, volume, length of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in IOTC. All species sampled are listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).
Description of the population
Population targeted: Population: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in IOTC. Population targeted: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in IOTC. Population studied: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by a subset of Portuguese vessels operating in IOTC from a fleet segment (~metier), based on a combination of gear licences and the main species landed in previous year. Primary Sampling Unit (PSU): fishing trip Population sampled: Population sampled / not sampled per metier and sampling scheme: -Metier LLD_LPF Population sampled: All vessels Sampling frame identifier: PTAS37 - LLD_LPF _ IOTC _ in sampling frame

<p>Population not sampled: Sampling frame identifier: PTAS38 - LLD_LPF _ IOTC _ out of sampling frame</p> <p>Stratification: No stratification.</p>
AR comment: No deviations.
Sampling design and protocols
<p>Sampling design description: At sea sampling schemes sample Catches (All fractions).</p> <p>a) The Portuguese fleet is stratified by fleet (~metier), area and quarter. One trawl metier operates in IOTC: LLD_LPF. Annual sampling effort (number of planned PSUs = fishing trips) is fixed and only 1 trip is allocated to this metier.</p> <p>b) Vessel is selected by SRSWR and fishing trip (= PSU) is selected by SRSWOR.</p> <p>c) Sampling is done per gear and gear segment during hauling. Number and length of species are recorded, as well as biological variables (age, weight, sex, maturity) of selected species (Work Plan – Table 2.2).</p> <p>d) Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).</p> <p>PETS observation effort is the same as for other species - i.e. it is done during hauling of the gear following the protocol described in topics a-c.</p> <p>Is the sampling design compliant with the 4S principle?: Y.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.</p> <p>Compliance with international recommendations: Y.</p> <p>Sampling design in line with international recommendations:</p> <ul style="list-style-type: none"> - Resolution IOTC 15/02: Mandatory Statistical Reporting Requirements for IOTC Contracting Parties and Cooperating Non-Contracting parties (CPCS)) - IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp. <p>Link to sampling protocol documentation: IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.</p>
AR comment: No deviations.

Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: NA. One fishing trip is sampled per year.</p>
AR comment: No deviations.
Data capture
<p>Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation on data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).</p> <p>Specificities for IOTC data capture can be found in:</p> <p>IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.</p> <p>Quality checks documentation: IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.</p>
AR comment: No deviations.
Data storage
<p>National database: http://nautilus.ipma.pt/</p> <p>International database: IOTC data base</p> <p>Quality checks and data validation documentation: Data is submitted to quality check to meet IOTC requirements and is validated by IOTC.</p>
AR comment: No deviations.
Sample storage
<p>Storage description:</p> <p>Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p>

Sample analysis: IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.

Editing and imputation methods: IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.

Quality document associated to a dataset: IOTC Secretariat (2014). Guidelines for the reporting of Fisheries Statistics to the IOTC. IOTC Secretariat, Mahé, Seychelles, January 2014. 70pp.

Validation of the final dataset:

Data is submitted to quality check to meet IOTC requirements and is validated by IOTC.

Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Mainland At Sea ICCAT

MS: PRT
Region: Other regions
Sampling scheme identifier: Mainland At Sea ICCAT
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan - Table 2.5) aiming at sampling catch (discards + landings) composition, volume, length of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in ICCAT. All species sampled are listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).
Description of the population
Population targeted: Population: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in ICCAT. Population targeted: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan – Table 2.2) captured by Portuguese vessels operating in ICCAT. Population studied: lengths of species and biological variables (age, weight, sex, maturity of selected species in Work Plan - Table 2.2) captured by a subset of Portuguese vessels operating in ICCAT from a fleet segment (~metier), based on a combination of gear licences and the main species landed in previous year. Primary Sampling Unit (PSU): fishing trip Population sampled: Population sampled / not sampled per metier and sampling scheme: -Metier LLD_LPF Population sampled: All vessels Sampling frame identifier: PTAS35 - LLD_LPF _ ICCAT _ in sampling frame

<p>Population not sampled: Sampling frame identifier: PTAS36 - LLD_LPF _ ICCAT _ out of sampling frame</p> <p>Stratification: No stratification.</p>
AR comment: No deviations.
Sampling design and protocols
<p>Sampling design description:</p> <p>At sea sampling schemes sample Catches (All fractions).</p> <p>a) The Portuguese fleet is stratified by fleet (~metier), area and quarter. In this region * RFMO/RFO/IO * Sampling scheme the metier considered is LLD_LPF. Annual sampling effort (number of planned PSUs = fishing trips) is fixed.</p> <p>b) Vessel is selected by SRSWR and fishing trip (= PSU) is selected by SRSWOR.</p> <p>c) Sampling is done per gear and gear segment during hauling. Number and length of species are recorded, as well as biological variables (age, weight, sex, maturity) of selected species (Work Plan – Table 2.2).</p> <p>d) Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).</p> <p>PETS observation effort is the same as for other species - i.e. it is done during hauling of the gear following the protocol described in topics a-c.</p> <p>Is the sampling design compliant with the 4S principle?: Y.</p> <p>Regional coordination: N.</p> <p>Link to sampling design documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Compliance with international recommendations: Y. Sampling design in line with international recommendations (e.g. ICCAT Manual)</p> <p>Link to sampling protocol documentation: https://www.iccat.int/en/iccatmanual.html</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.</p> <p>Monitoring of sampling progress within the sampling year: One fishing trip is sampled per year.</p>

<p>AR comment:</p> <p>No deviations.</p> <p>There is a mistake in the WP which will be amended in the next WP:</p> <p>“Monitoring of sampling progress within the sampling year:” should be “The implementation of PSU per year is monitored throughout the year. When necessary and possible, the PSUs planned but not executed (due to operational/logistical constraints) are rescheduled.”</p>
<p>Data capture</p>
<p>Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).</p> <p>Data capture documentation: Documentation on data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).</p> <p>Specificities for ICCAT data capture can be found in</p> <p>https://www.iccat.int/en/iccatmanual.html</p> <p>Quality checks documentation:</p> <p>https://www.iccat.int/en/iccatmanual.html</p>
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: http://nautilus.ipma.pt/</p> <p>International database: www.iccat.org/en/accesingdb.htm</p> <p>Quality checks and data validation documentation:</p> <p>https://www.iccat.int/en/iccatmanual.html</p>
<p>AR comment: No deviations.</p>
<p>Sample storage</p>
<p>Storage description:</p> <p>Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p>

Sample analysis: https://www.iccat.int/en/iccatmanual.html
AR comment: No deviations.
Data processing
Evaluation of data accuracy (bias and precision): https://www.iccat.int/en/iccatmanual.html https://www.iccat.int/en/submitSTAT.html Editing and imputation methods: https://www.iccat.int/en/iccatmanual.html Quality document associated to a dataset: https://www.iccat.int/en/submitSTAT.html Validation of the final dataset: Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.
AR comment: No deviations.

Mainland On Shore ICCAT

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Mainland On Shore ICCAT
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan – Table 2.5) aiming at sampling length of species and biological variables (sex, maturity of selected species in Work Plan – Table 2.2) of landings from ICCAT at mainland ports. All landed species are sampled, including species listed in Table 1 of the EU MAP Delegated Decision annex. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the “Landings” fractions are sampled.
Description of the population
Population targeted: Population targeted and studied: lengths of species and biological variables (sex, maturity of selected species in Work Plan - Table 2.2) from ICCAT landed at mainland ports. Primary Sampling Unit (PSU): port*day Population sampled: Population sampled / not sampled per metier and sampling scheme: -Metier LLD_LPF: Population sampled: Single main mainland national port of this metier: PENICHE Sampling frame identifier: PTOS19 - LLD_LPF _ Single main port _ ICCAT Population not sampled: Minor mainland national ports of this metier: no ports Sampling frame identifier: PTOS20 - LLD_LPF _ Minor ports _ ICCAT -Metier FPN_LPF:

<p>Population sampled:</p> <p>Single main mainland national port of this metier: OLHAO</p> <p>Sampling frame identifier: PTOS21 - FPN_LPF _ Single main port _ ICCAT</p> <p>Population not sampled:</p> <p>Minor mainland national ports of this metier: no ports</p> <p>Sampling frame identifier: PTOS22 - FPN_LPF _ Minor ports _ ICCAT</p> <p>Stratification: Stratification is used to improve sampling coverage through the year (by quarter).</p>
AR comment: No deviations.
Sampling design and protocols
<p>Sampling design description:</p> <p>On shore sampling schemes sample Landings (All fractions).</p> <p>a) Annual sampling effort (number of planned PSUs = port*days = onshore events) is fixed <u>and is allocated to the different metiers based on landings from previous reference years (weight/value criteria).</u></p> <p>b) For each metier, sampling effort (number of port*day = onshore events = PSUs) is allocated to quarters based on landings from previous reference years, and each onshore event (port*day = PSU) is selected by UPSWOR.</p> <p>c) In every port*day (=onshore event = PSUs), observers attempt to sample a predefined number of landing events (~fishing trips), that are randomly selected (by SRSWOR) from a list of all landing events awaiting auction. This list includes the name of each vessel and the commercial species, commercial size category and weight of each of its boxes. Each landing event generally corresponds to the landings of one fishing trip. A minor proportion of landing events may not be present in the selection list at selection time when sampling starts.</p> <p>d) In each landing event (~fishing trip), the observers aim to sample every combination of commercial species and commercial size category (by Census).</p> <p>e) Within each combination of commercial species * commercial size category, the observers select boxes until the length composition of the species is well defined.</p> <p>f) When different species are present within a box, observers select them all for length sampling.</p> <p>g) For selected species (Work Plan – Table 2.2) biological variables are sampled in situ.</p> <p>h) Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme since in on shore sampling of commercial fishing trips only the “Landings” fractions are sampled. Within a sampled</p>

commercial fishing trip, PETS observation effort is done in all boxes sampled for other species (protocol described in topics a-g).
Is the sampling design compliant with the 4S principle?: Y.
Regional coordination: N.
Link to sampling design documentation: https://www.iccat.int/en/iccatmanual.html
Compliance with international recommendations: Y. Sampling design in line with international recommendations (e.g. ICCAT manual)
Link to sampling protocol documentation: https://www.iccat.int/en/iccatmanual.html
AR comment: No deviations.
Sampling implementation
Recording of refusal rate: N. Recording of refusal rates will be developed in 2022-2024.
Monitoring of sampling progress within the sampling year: The number of PSU per trimester per sampling scheme executed versus planned is monitored monthly. When necessary and possible, the number of PSU planned but not executed (due to operational/logistical constraints) is rescheduled.
AR comment: No deviations.
Data capture
Means of data capture: Biological data is collected with measuring board/tape (variable length) and scale (variable weight).
Data capture documentation: Documentation on data capture is disclosed to all scientific observers and under constant improvement (e.g. species identification guides, age reading protocols, maturity stage guides, biological sampling protocols).
Specificities for ICCAT data capture can be found in: https://www.iccat.int/en/iccatmanual.html
Quality checks documentation: https://www.iccat.int/en/iccatmanual.html
AR comment: No deviations.
Data storage
National database: http://nautilus.ipma.pt/

<p>International database: www.iccat.org/en/accesingdb.htm</p> <p>Quality checks and data validation documentation:</p> <p>https://www.iccat.int/en/iccatmanual.html</p>
<p>AR comment: No deviations.</p>
<p>Sample storage</p>
<p>Storage description: Biological samples are stored at IPMA.</p> <p>Biological samples are stored at IPMA and a record of samples per species/stock by geographic sub-area is kept.</p> <p>Hard tissues (otoliths and hard tissues for age reading) are stored until and after processing/analysis. Soft tissues (stomachs, gonads) are stored until processing/analysis.</p> <p>Sample analysis: https://www.iccat.int/en/iccatmanual.html</p>
<p>AR comment: No deviations.</p>
<p>Data processing</p>
<p>Evaluation of data accuracy (bias and precision):</p> <p>https://www.iccat.int/en/iccatmanual.html</p> <p>https://www.iccat.int/en/submitSTAT.html</p> <p>Editing and imputation methods: https://www.iccat.int/en/iccatmanual.html</p> <p>Quality document associated to a dataset: https://www.iccat.int/en/iccatmanual.html</p> <p>Validation of the final dataset:</p> <p>Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT.</p> <p>Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.</p>
<p>AR comment: No deviations.</p>

Madeira On Shore CECAF

M.S: PRT
Region: Other regions
Sampling scheme identifier: Madeira On Shore CECAF
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The objective of this sampling scheme (Work Plan – Table 2.5.) is to collect length-frequency distributions of commercial fish species landed at auctions by Madeiran vessels operating in FAO 34.1.2 (RFMO/RFO/IO CECAF), for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). Occurrence of incidental bycatch of PETS (Protected Endangered and Threatened Species) is also recorded.</p>
Description of the population
Population targeted: <p>The primary sampling scheme design is set to measure fish lengths from commercial species landed at auction (=port) by Madeiran vessels operating in FAO 34.1.2. The sampling frame includes a list of port*day for each fleet segment. Furthermore, within each métier, sampling effort distribution in space and time is proportional to landings in each port*month. Finally, the primary sampling unit (PSU) considered for this sampling scheme is vessel*trip.</p> Population sampled: <p>Single main Madeira port of this metier: FUNCHAL</p> <p>Landed fish lengths are obtained from sampling a subset harvested by Madeiran active vessels operating in FAO 34.1.2. This subset includes several fleet segments selected based on the species landed at auction. The list of vessels by segment is updated annually based on gear type licenses and on the main species landed in the previous year.</p> <p>The sampled population includes fish lengths collected per trip by vessels operating mid-water drifting longlines targeting deep sea species like <i>Aphanopus carbo</i> and <i>A. intermedius</i> (sampling frame identifier DWF1_M1). Regarding purse seine boats targeting small pelagic fish (sampling frame identifier SPF1_M2), catches are composed of mixed species. The main species (<i>Scomber colias</i> and <i>Trachurus</i> spp) are randomly sampled upon landing according to protocol.</p>

The two main ports in Madeira Island are considered for the above-mentioned sampling design and around 10% of the total annual fishing trips are predicted to be sampled.

Population not sampled per métier and sampling scheme:

Other Madeira ports of this métier: no ports

Sampling frame identifier: DWF3_M1_out of frame

Sampling frame identifier: SPF3_M2_out of frame

Stratification: Sampling scheme stratification includes ports on a spatial scale and months on a temporal scale. Overall, stratification is implemented to improve sampling coverage throughout the year.

AR comment: No deviations.

Sampling design and protocols

Sampling design description:

The sampling design is a stratified multistage scheme, with vessel*trip as the Primary Sampling Unit (PSU):

a) The Madeiran fleet is stratified by segment and métier, and by trip and month. According to EU Map requirements [EU Commission Delegated Decision (2021/1167/EU)], sampling effort is established as number of trips. Additionally, annual sampling effort is fixed by the National Work Plan for Data Collection, which sets the number of trips expected to be sampled by métier.

b) For each segment/métier, visit_date for each auction*month is spread systematically throughout the month in order to cover all week-days where the fleet is active.

c) In every auction*visit_date, observers attempt to sample a predefined number of vessel_sale_event. Each vessel_sale_event generally corresponds to one fishing trip landings. To select the vessel_sale_event that are to be sampled, observers obtain a list of all landings awaiting auction. The list generally includes the name of each vessel and the commercial species, commercial category and weight of each of its boxes. A vessel_sale_event is selected haphazardly from the list.

d) In each vessel_sale_event, observers aim to sample boxes from every commercial species and commercial category.

e) Within each commercial category, observers select 1 box haphazardly. Nonetheless, sometimes there are less than 100 individuals from a certain commercial species in 1 box, therefore observers sample several different boxes in order to reach the minimum sampling size required.

f) Regarding the sampling frame identifier DWF1_M1, different species may be present in the same box. Considering that *Aphanopus carbo* and *A. intermedius* are two sympatric and morphologically not easily distinguished, observers sample all individuals in the same box without distinction.

g) Occurrence of incidental bycatch of PETS (Protected Endangered and Threatened Species) is also recorded.

References:

Delgado J, Reis S, González JA, Isidro E, Biscoito M, Freitas M, Tuset VM (2013). Reproduction and growth of *Aphanopus carbo* and *A. intermedius* (Teleostei: Trichiuridae) in the northeastern Atlantic. *Journal of Applied Ichthyology* 29, 1008-1014.

Nakamura I, Parin NV (1993). Snake mackerels and cutlassfishes of the world (Families Gempylidae and Trichiuridae). An Annotated and Illustrated Catalogue of the Snake Mackerels, Snoeks, Escolars, Gemfishes, Sackfishes, Domine, Oilfish, Cutlassfishes, Scabbardfishes, Hairtails, and Frostfishes Known to Date. FAO, Rome

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

Regional coordination: N

Link to sampling design documentation: <https://marmadeira.com/publicacoes/>

Compliance with international recommendations: Y

Link to sampling protocol documentation: <https://marmadeira.com/publicacoes/>

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year: Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.

AR comment: No deviations.

Data capture

Means of data capture: Commercial species length data is obtained through measurements, using either a big measuring board or a measuring tape, depending on the size of the individuals sampled. Observations are noted down on appropriate sampling sheets. Sampling is executed by two observers, one of which is responsible for measuring and the other for taking note of data. À posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.

<p>Data capture documentation: https://marmadeira.com/publicacoes/</p> <p>Quality checks documentation:</p> <p>Y. The Microsoft Excel © local database includes information by trip (vessel information, date, fishing location(s), landed weight by species) and statistical sampling information (species, sample weight, number of sampled specimens and length observations).</p> <p>Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> 1. All samples are checked by the coordinator before the data is inputted into the local database; 2. After all data is introduced into the local database it is subsequently checked for errors and outliers; 3. A random check of 10% of the data is executed by inspecting the registered data for logical errors; 4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations.
AR comment: No deviations.
Data storage
<p>National database: Local Database</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: The obtained data is used for the elaboration of peer-reviewed scientific publications with an impact factor, and hence data quality is assured by journal editorial boards and reviewers.</p>
AR comment: No deviations.
Sample storage
<p>Storage description: NA</p> <p>Sample analysis: NA</p>
AR comment: No deviations.
Data processing
Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.

Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.

Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.

AR comment: No deviations.

Madeira At Sea CECAF

MS: PRT
Region: Other regions
Sampling scheme identifier: Madeira At Sea CECAF
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The objective of this sampling scheme (Work Plan – Table 2.5) is to identify and characterize catch fractions with a specific species composition from Madeiran vessels operating in FAO 34.1.2 (RFMO/RFO/IO CECAF), particularly for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). Data collection includes both landings and discards, in terms of number and volume of specimens, and in length frequency distributions. Occurrence of incidental bycatch of PETS (Protected Endangered and Threatened Species) is also recorded.</p>
Description of the population
Population targeted: <p>The primary sampling scheme design is set to measure fish lengths from commercial species harvested by Madeiran vessels of all length classes operating in FAO 34.1.2. The sampling frame includes a list of vessels for each fleet segment/métier that can provide for and are willing to take onboard observers. Furthermore, within each métier, sampling effort distribution in space and time is proportional to effort and/or landings. Finally, the primary sampling unit (PSU) considered for this sampling scheme is vessel*trip.</p> <p>Population sampled:</p> <p>Population sampled: All vessels</p> <p>Fish lengths are obtained from sampling a subset harvested by Madeiran active vessels operating in FAO 34.1.2. This subset includes several fleet segments selected based on the species landed at auction. The list of vessels by segment is updated annually based on gear type licenses and on the main species landed in the previous year. Additionally, vessel selection for sampling is performed randomly. Every year, the following métiers and correspondent sampling effort goals are set:</p> <ol style="list-style-type: none"> Sampling frame identifier DWF2_ M1, n=17 trips; <u>Sampling frame identifier</u> SPF2_ M2, n=15 trips.

Furthermore, a pluriannual observer programme (2022-2024) will be implemented by contracting an outsourced service to implement it aboard Madeiran fishing vessels.

Population not sampled:

Sampling frame identifier: DWF4_M1_out of frame

Sampling frame identifier: SPF4_M2_out of frame

Stratification: Sampling scheme stratification includes vessel length class and métier. Overall, stratification is implemented to improve sampling coverage throughout the year.

AR comment:

- Sampling frame identifier SPF2_M2: No deviations.
- Sampling frame identifier DWF2_M1: No sampling carried out in 2022.

Sampling design and protocols

Sampling design description:

At-sea sampling is conducted by scientific observers, who are voluntarily accommodated on board by the owner of the vessel and/or the shipmaster.

Every trip's haul is selected for sampling and, for each fishing operation, recorded data includes:

- a. gear type and technical characteristics of the fishing operation;
- b. geographical location of fishing sets;
- c. species composition of the total catch (retained and discarded), and landings (collected at the fish auction following the trip) in number and biomass;
- d. lengths of retained (subsample), discards (census) and landings (subsample);
- e. sex for elasmobranchs and crustaceans;
- f. reason for discarding each individual;
- g. condition upon discarded (alive/dead);
- h. outcome for the retained fraction of the catch that might not be landed;
- i. interactions with vulnerable fauna (e.g. sea-birds, sea-turtles and marine mammals) are also recorded.
- j. Occurrence of incidental bycatch of PETS (Protected Endangered and Threatened Species) is also recorded.

The Madeira at-sea observer programme will collect comprehensive data on species length composition of all retained and discarded fractions on a haul-by-haul basis, and therefore will provide Scheme 1 concurrent sampling of Group 1 – 3 species. Landings from vessels with

an observer on board will be further statically sampled by at-port observers, on previously randomly assigned dates.

The target population corresponds to the total number of fishing trips for a given métier and during a specific time period.

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

Regional coordination: N

Link to sampling design documentation: <https://marmadeira.com/publicacoes/>

Compliance with international recommendations: Y

Link to sampling protocol documentation: <https://marmadeira.com/publicacoes/>

AR comment:

- Sampling frame identifier SPF2_M2: No deviations.
- Sampling frame identifier DWF2_M1: No sampling carried out in 2022.

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year:

Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.

However, some difficulties are expected, namely regarding observers' boarding authorisation by the vessel owner and/or the shipmaster. Aside from gathering all the appropriate conditions, there must be a willingness to cooperate with the scientific observers. Consequently, smaller vessels do not qualify to participate in the programme.

AR comment:

- Sampling frame identifier SPF2_M2: No deviations.
- Sampling frame identifier DWF2_M1: No sampling carried out in 2022.

Data capture

Means of data capture: Commercial species length data is obtained through measurements, using either a big measuring board or a measuring tape, depending on the size of the individuals sampled. Observations are noted down on appropriate sampling sheets. A posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.

<p>Data capture documentation: https://marmadeira.com/publicacoes/</p> <p>Quality checks documentation:</p> <p>Y. The Microsoft Excel © local database includes information by trip (vessel information, date, fishing location(s), landed weight by species) and statistical sampling information (species, sample weight, number of sampled specimens and length observations).</p> <p>Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> 1. All samples are checked by the coordinator before the data is inputted into the local database; 2. After all data is introduced into the local database it is subsequently checked for errors and outliers; 3. A random check of 10% of the data is executed by inspecting the registered data for logical errors; 4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations.
<p>AR comment:</p> <ul style="list-style-type: none"> - Sampling frame identifier SPF2_M2: No deviations. - Sampling frame identifier DWF2_M1: No sampling carried out in 2022.
<p>Data storage</p>
<p>National database: Local Database</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: The obtained data is used for the elaboration of peer-reviewed scientific publications with an impact factor, and hence data quality is assured by journal editorial boards and reviewers.</p>
<p>AR comment:</p> <ul style="list-style-type: none"> - Sampling frame identifier SPF2_M2: No deviations. - Sampling frame identifier DWF2_M1: No sampling carried out in 2022.
<p>Sample storage</p>
<p>Storage description: NA</p> <p>Sample analysis: NA</p>
<p>AR comment: Not applicable.</p>

Data processing
<p>Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.</p> <p>Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.</p>
<p>AR comment:</p> <ul style="list-style-type: none"> - Sampling frame identifier SPF2_M2: No deviations. - Sampling frame identifier DWF2_M1: No sampling carried out in 2022.

Madeira On Shore ICCAT

MS: PRT
Region: Other regions
Sampling scheme identifier: Madeira On Shore ICCAT
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The objective of this sampling scheme (Work Plan – Table 2.5) is to collect length-frequency distributions of commercial fish species landed at Madeira ports by Madeira vessels operating in ICCAT (FAO 34.1.2), for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme.</p>
Description of the population
Population targeted: <p>The primary sampling scheme design is set to measure fish lengths from commercial species landed at Madeira auction (=port) by Madeiran vessels operating in ICCAT (FAO 34.1.2). The sampling frame includes a list of port*day for each fleet segment. Furthermore, within each métier, sampling effort distribution in space and time is proportional to landings in each port*month. Finally, the primary sampling unit (PSU) considered for this sampling scheme is vessel*trip.</p>
Population sampled: <p>Main Madeira ports of this metier: FUNCHAL and CANIÇAL Landed fish lengths are obtained from sampling a subset harvested by Madeiran active vessels operating in ICCAT (FAO 34.1.2). This subset includes several fleet segments selected based on the species landed at auction. The list of vessels by segment is updated annually based on gear type licenses and on the main species landed in the previous year.</p> <p>The sampled population includes fish lengths collected per trip by vessels operating pole-and-line targeting tuna species (sampling frame identifier LPF1_M3).</p> <p>The two main ports in Madeira Island are considered for the above-mentioned sampling design and around 10% of the total annual fishing trips are predicted to be sampled.</p>

<p>Population not sampled per metier and sampling scheme:</p> <p>Other Madeira ports of this metier: no ports</p> <p>Sampling frame identifier: LPF3_M3_out of frame</p> <p>Stratification: Sampling scheme stratification is none. As such, all vessels landing in each of the selected sampling ports are susceptible to being sampled.</p>
<p>AR comment: No deviations.</p>
<p>Sampling design and protocols</p>
<p>Sampling design description:</p> <p>The sampling design is a stratified multistage scheme, with vessel*trip as the Primary Sampling Unit (PSU):</p> <ol style="list-style-type: none"> The Madeiran fleet is stratified by segment and métier, and by trip and month. According to EU Map requirements [EU Commission Delegated Decision (2021/1167/EU)], sampling effort is established as number of trips. Additionally, annual sampling effort is fixed by the National Work Plan for Data Collection, which sets the number of trips expected to be sampled by métier. In each vessel_sale_event, observers aim to individually measure each specimen for every commercial species and commercial category. Within each commercial category, observers select 50 individuals haphazardly. Nonetheless, there are usually less than 50 individuals from a certain commercial category in 1 box, therefore observers sample several different boxes in order to reach the minimum sampling size required. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort) but occurrences are not expected in this sampling scheme. <p>Is the sampling design compliant with the 4S principle?: Y</p> <p>Regional coordination: N</p> <p>Link to sampling design documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Compliance with international recommendations: Y</p> <p>Link to sampling protocol documentation: https://www.iccat.int/en/iccatmanual.html</p>
<p>AR comment: No deviations.</p>
<p>Sampling implementation</p>

<p>Recording of refusal rate: Y</p> <p>Monitoring of sampling progress within the sampling year: Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.</p>
<p>AR comment: No deviations.</p>
<p>Data capture</p>
<p>Means of data capture: Commercial species length data is obtained through measurements, using either a big measuring board or a measuring tape, depending on the size of the individuals sampled. Observations are noted down on appropriate sampling sheets. Sampling is executed by two observers, one of which is responsible for measuring and the other for taking note of data. A posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.</p> <p>Data capture documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Quality checks documentation:</p> <p>Y. Quality control is carried out before data is submitted to ICCAT to meet the organisation's requirements. The Microsoft Excel © local database includes information by trip (vessel information, date, fishing location(s), landed weight by species) and statistical sampling information (species, sample weight, number of sampled specimens and length observations).</p> <p>Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> 1. All samples are checked by the coordinator before the data is inputted into the local database; 2. After all data is introduced into the local database it is subsequently checked for errors and outliers; 3. A random check of 10% of the data is executed by inspecting the registered data for logical errors; 4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations; 5. All data is made public in ICCAT Secretariat and respective website.
<p>AR comment: No deviations.</p>
<p>Data storage</p>
<p>National database: Local Database</p> <p>International database: https://iccat.int/en/accesingdb.html</p> <p>Quality checks and data validation documentation: Stocks of the main ICCAT species are assessed regularly by the Scientific Committee for Research and Statistics (SCRS) of ICCAT. The methods are defined and applied according to the SCRS work. The frequency of the</p>

stock assessments is predefined according to the SCRS schedule of assessments and requests from the ICCAT Commission.
AR comment: No deviations.
Sample storage
Storage description: NA
Sample analysis: NA
AR comment: Not applicable.
Data processing
Evaluation of data accuracy (bias and precision): https://www.iccat.int/en/iccatmanual.html https://www.iccat.int/en/submitSTAT.html Editing and imputation methods: https://www.iccat.int/en/iccatmanual.html Quality document associated to a dataset: https://www.iccat.int/en/iccatmanual.html Validation of the final dataset: Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT. Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.
AR comment: No deviations.

Madeira At Sea ICCAT

MS: PRT
Region: Other regions
Sampling scheme identifier: Madeira At Sea ICCAT
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>The objective of this sampling scheme (Work Plan – Table 2.5) is to identify and characterize catch fractions with a specific species composition from Madeiran vessels operating in FAO 34.1.2 (RFMO/RFO/IO ICCAT), particularly for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). Data collection includes both landings and discards, in terms of number and volume of specimens, and in length frequency distributions. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort).</p>
Description of the population
<p>Population targeted:</p> <p>The primary sampling scheme design is set to measure fish lengths from commercial species harvested by Madeiran vessels of all length classes operating in FAO 34.1.2. The sampling frame includes a list of vessels for each fleet segment/métier that can provide for and are willing to take onboard observers. Furthermore, within each métier, sampling effort distribution in space and time is proportional to effort and/or landings. Finally, the primary sampling unit (PSU) considered for this sampling scheme is vessel*trip.</p> <p>Population sampled:</p> <p>Population sampled: All vesselsFish lengths are obtained from sampling a subset harvested by Madeiran active vessels operating in FAO 34.1.2. This subset includes several fleet segments selected based on the species landed at auction. The list of vessels by segment is updated annually based on gear type licenses and on the main species landed in the previous year. Additionally, vessel selection for sampling is performed randomly. Every year, the following métiers and correspondent sampling effort goals are set:</p> <p>a. Sampling frame identifier LPF2_ M3, n=34 trips</p> <p>Furthermore, a pluriannual observer programme (2022-2024) will be implemented by contracting an outsourced service to implement it aboard Madeiran fishing vessels.</p>

<p>Population not sampled:</p> <p>Sampling frame identifier: LPF4_M3_out of frame</p> <p>Stratification: Sampling scheme stratification includes vessel length class and métier. Overall, stratification is implemented to improve sampling coverage throughout the year.</p>
<p>AR comment: No sampling was carried out in 2022.</p>
<p>Sampling design and protocols</p>
<p>Sampling design description:</p> <p>At-sea sampling is conducted by scientific observers, who are voluntarily accommodated on board by the owner of the vessel and/or the shipmaster.</p> <p>Every trip's haul is selected for sampling and, for each fishing operation, recorded data includes:</p> <ul style="list-style-type: none"> a. gear type and technical characteristics of the fishing operation; b. geographical location of fishing sets; c. species composition of the total catch (retained and discarded), and landings (collected at the fish auction following the trip) in number and biomass; d. lengths of retained (subsample), discards (census) and landings (subsample); e. sex for elasmobranchs and crustaceans; f. reason for discarding each individual; g. condition upon discarded (alive/dead); k. outcome for the retained fraction of the catch that might not be landed; l. interactions with vulnerable fauna (e.g. sea-birds, sea-turtles and marine mammals) are also recorded. m. Observation of PETS (Protected Endangered and Threatened Species) is also covered within the sampling scheme (along with quantification of PETS observation effort). PETS observation effort is the same as for other species - i.e. it is done during hauling of the gear following the protocol described in topics a-c. <p>The Madeira at-sea observer programme will collect comprehensive data on species length composition of all retained and discarded fractions on a haul-by-haul basis, and therefore will provide Scheme 1 concurrent sampling of Group 1 – 3 species. Landings from vessels with an observer on board will be further statically sampled by at-port observers, on previously randomly assigned dates.</p> <p>The target population corresponds to the total number of fishing trips for a given métier and during a specific time period.</p> <p>Is the sampling design compliant with the 4S principle?: Y</p> <p>Regional coordination: N</p>

<p>Link to sampling design documentation: https://www.iccat.int/en/iccatmanual.html</p> <p>Compliance with international recommendations: Y</p> <p>Link to sampling protocol documentation: https://www.iccat.int/en/iccatmanual.html</p>
<p>AR comment: No sampling was carried out in 2022.</p>
<p>Sampling implementation</p>
<p>Recording of refusal rate: Y</p> <p>Monitoring of sampling progress within the sampling year:</p> <p>Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.</p> <p>However, some difficulties are expected, namely regarding observers' boarding authorisation by the vessel owner and/or the shipmaster. Aside from gathering all the appropriate conditions, there must be a willingness to cooperate with the scientific observers. Consequently, smaller vessels do not qualify to participate in the programme.</p>
<p>AR comment: No sampling was carried out in 2022.</p>
<p>Data capture</p>
<p>Means of data capture: Commercial species length data is obtained through measurements, using either a big measuring board or a measuring tape, depending on the size of the individuals sampled. Observations are noted down on appropriate sampling sheets. A posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.</p> <p>Data capture documentation: https://iccat.int/en/accesingdb.html</p> <p>Quality checks documentation:</p> <p>Y. The Microsoft Excel © local database includes information by trip (vessel information, date, fishing location(s), landed weight by species) and statistical sampling information (species, sample weight, number of sampled specimens and length observations).</p> <p>Quality checks and validation procedures are implemented:</p> <ol style="list-style-type: none"> 1. All samples are checked by the coordinator before the data is inputted into the local database; 2. After all data is introduced into the local database it is subsequently checked for errors and outliers; 3. A random check of 10% of the data is executed by inspecting the registered data for logical errors;

4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations.
AR comment: No sampling was carried out in 2022.
Data storage
National database: Local Database International database: https://iccat.int/en/accesingdb.html Quality checks and data validation documentation: The obtained data is used for the elaboration of peer-reviewed scientific publications with an impact factor, and hence data quality is assured by journal editorial boards and reviewers.
AR comment: No sampling was carried out in 2022.
Sample storage
Storage description: NA Sample analysis: NA
AR comment: Not applicable.
Data processing
Evaluation of data accuracy (bias and precision): https://www.iccat.int/en/iccatmanual.html https://www.iccat.int/en/submitSTAT.html Editing and imputation methods: https://www.iccat.int/en/iccatmanual.html Quality document associated to a dataset: https://www.iccat.int/en/iccatmanual.html Validation of the final dataset: Data is submitted to quality check to meet ICCAT requirements and is validated by ICCAT. Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.
AR comment: No sampling was carried out in 2022.

Madeira On Shore NA

MS: PRT
Region: Outermost regions
Sampling scheme identifier: Madeira On Shore NA
Sampling scheme type: Commercial fishing trip
Observation type: Scientific observer on shore (either on-site or off-site)
Time period of validity: 2022-2024
Short description (max 100 words): The objective of this sampling scheme (Work Plan – Table 2.5) is to collect length-frequency distributions of commercial limpet's species (Patellidae) landed at auctions by Madeiran vessels operating in the Outermost region FAO 34.1.2 (RFMO/RFO/IO NA), for species listed in Table 1 of the EU MAP Delegated Decision annex (2021/1167/EU). Occurrence of incidental bycatch of PETS (Protected Endangered and Threatened Species) is not expected in this metier.
Description of the population
Population targeted: The primary sampling scheme design is set to measure limpets' lengths from commercial species landed at auction (=port) by Madeiran vessels operating in FAO 34.1.2. The sampling frame includes a list of port*day for each fleet segment. Furthermore, within each métier, sampling effort distribution in space and time is proportional to landings in each port*month. Finally, the primary sampling unit (PSU) considered for this sampling scheme is vessel*trip.
Population sampled: Madeira ports of this metier: PORTO MONIZ and PAUL DO MAR Sampling frame identifier: MOL1_M4 Landed limpet lengths are obtained from sampling a subset harvested by Madeiran active vessels operating in the outermost region of Madeira, FAO 34.1.2. This subset includes several fleet segments selected based on the species landed at auction. The list of vessels by segment is updated annually based on harvesting licenses from the previous year. The sampled population includes limpet lengths collected per trip by vessels targeting commercial limpet species. Upon landing, Patellidae species are usually mixed and hence are randomly sampled by the observers.

All ports in which limpets are landed in Madeira Island are considered for the above-mentioned sampling design, and around 5% of the total annual fishing trips are predicted to be sampled.

Population not sampled per metier and sampling scheme:

Other Madeira minor ports of this metier: no ports

Sampling frame identifier: MOL2_M4_out of frame

Stratification: Sampling scheme stratification includes ports on a spatial scale and months on a temporal scale. Overall, stratification is implemented to improve sampling coverage throughout the year.

AR comment: No deviations.

Sampling design and protocols

Sampling design description:

The sampling design is a stratified multistage scheme, with vessel*trip as the Primary Sampling Unit (PSU):

- a. The Madeiran fleet is stratified by segment, trip and month. According to EU Map requirements [EU Commission Delegated Decision (2021/1167/EU)], sampling effort is established as number of trips. Additionally, annual sampling effort is fixed by the National Work Plan for Data Collection, which sets the number of trips expected to be sampled by the sampling frame identifier MOL1_M4.
- b. For each segment, visit_date for each auction*month is spread systematically throughout the month in order to cover all week-days where the fleet is active.
- c. In every auction*visit_date, observers attempt to sample a predefined number of vessel_sale_event. Each vessel_sale_event generally corresponds to one harvesting trip landings. To select the vessel_sale_event that are to be sampled, observers obtain a list of all landings awaiting auction. The list generally includes the name of each vessel and the commercial species and weight of each of its boxes. A vessel_sale_event is selected haphazardly from the list.
- e. In each vessel_sale_event, observers aim to sample boxes from every commercial species and select 1 box haphazardly. Within each box both limpet species may be present, and observers select from amongst them haphazardly and without distinction.

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

Regional coordination: N

Link to sampling design documentation: Sousa R, Delgado J, Pinto AR, Henriques P (2017). Growth and reproduction of the north-eastern Atlantic keystone species *Patella aspera* (Mollusca: Patellogastropoda). *Helgoland Marine Research*, 71,8. DOI 10.1186/s10152-017-0488-9

Compliance with international recommendations: Y

Link to sampling protocol documentation: Sousa R, Delgado J, Pinto AR, Henriques P (2017). Growth and reproduction of the north-eastern Atlantic keystone species *Patella aspera* (Mollusca: Patellogastropoda). *Helgoland Marine Research*, 71,8. DOI 10.1186/s10152-017-0488-9

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: Y

Monitoring of sampling progress within the sampling year: Sampling design is monitored and adjusted throughout the year in order to reach the minimum number of samples required.

AR comment: No deviations.

Data capture

Means of data capture: Length data for both commercial limpet species is obtained through measurements using a Vernier calliper. Observations are noted down on appropriate sampling sheets. Sampling is executed by two observers, one of which is responsible for measuring and the other for taking note of data. A posteriori, a sampling ID number is allocated for a specific landing/sampling event and observations are verified and logged into a computer data base.

Data capture documentation: <https://marmadeira.com/publicacoes/>

Quality checks documentation:

Y.

Quality checks and validation procedures are implemented:

1. All samples are checked by the coordinator before the data is inputted into the local database;
2. After all data is introduced into the local database it is subsequently checked for errors and outliers;
3. A random check of 10% of the data is executed by inspecting the registered data for logical errors;
4. Length distribution and effort information is then connected with vessel logbooks for future cross examinations;

AR comment: No deviations.
Data storage
<p>National database: Local Database</p> <p>International database: RDB/RDBES</p> <p>Quality checks and data validation documentation: The obtained data is used for the elaboration of peer-reviewed scientific publications with an impact factor, and hence data quality is assured by journal editorial boards and reviewers.</p>
AR comment: No deviations.
Sample storage
<p>Storage description: NA</p> <p>Sample analysis: NA</p>
AR comment: Not applicable.
Data processing
<p>Evaluation of data accuracy (bias and precision): Data accuracy is evaluated by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Editing and imputation methods: Editing and imputation methods are developed by experts / stock assessors during preparation and analysis of data for expert / assessment working groups.</p> <p>Quality document associated to a dataset: Quality of datasets is documented in upload logs of data submitted to data calls and in expert / assessment working groups / regional coordination groups reports.</p> <p>Validation of the final dataset: Final datasets are validated by experts / stock assessors during expert / assessment working groups / regional coordination groups.</p>
AR comment: No deviations.

Table 2.6 - Research surveys at sea

MEGS

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: MEGS
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022
<p>Short description (max 100 words):</p> <p>The International Mackerel and Horse Mackerel Egg Survey (triennial) (MEGS) aims to: estimate spawning stock biomass (SSB) of the southern stock horse mackerel <i>Trachurus trachurus</i> (ICES 27.9.a), using the Daily Egg Production Method (DEPM); and provide data and samples of Atlantic mackerel <i>Scomber scombrus</i> for analysis by MEGS partners. The survey involves ichthyoplankton sampling at a grid of fixed stations (CalVET+CTD) and underway at the surface (CUFES), and fishing hauls conducted by pelagic or bottom trawling. The samples and data obtained are used for estimating eggs and adult parameters that will allow the calculation of SSB.</p>
Description of the population
<p>Population targeted:</p> <p>Target species: Horse mackerel (<i>Trachurus trachurus</i>) - HOM, Atlantic mackerel (<i>Scomber scombrus</i>) - MAC.</p> <p>Main survey area: Portuguese coast and Spanish Cadiz and Galician waters, corresponding to horse-mackerel southern stock (ICES 9aN, W and S).</p> <p>Population sampled:</p> <p><u>Target population:</u> horse mackerel population within the species main spawning area covered by the survey, over the continental and break shelf, and also corresponding to the whole area of horse-mackerel southern stock.</p> <p>Stratification: No stratification is carried out during survey sampling, it is done only at the level of the analyses, upon estimation of MEGS parameters.</p>
AR comment: NA
Sampling design and protocols
<p>Sampling design description:</p> <p>See Text Box 2.6 and Table 2.6.</p> <p>See description in:</p>

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

Lasker, R. (1985). An Egg Production Method for Estimating Spawning Biomass of Pelagic Fish: Application to the Northern Anchovy, *Engraulis mordax*, NOAA Technical Report NMFS, US Department of Commerce, Springfield, VA, USA, 99 pp.

Is the sampling design compliant with the 4S principle? NA - Research survey at sea.

Regional coordination: Y. Coordinated internationally by ICES WGMEGS.

<https://www.ices.dk/community/groups/Pages/WGMEGS.aspx>

Link to sampling design documentation:

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

Link to sampling protocol documentation:

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

AR comment: BONGO hauls are auxilliary samples that were not taken due to lack of time, though not needed for the estimations. By mistake they are still referred in the work program (WP) (Table 2.6). This will be corrected in the next WP revision. The main sampler is with the CalVET nets as described in the TextBox 2.6.

Sampling implementation

Recording of refusal rate: NA - Research survey at sea.

Monitoring of sampling progress within the sampling year: NA - Research survey at sea.

AR comment: NA

Data capture

Means of data capture: Ichthyoplankton, fish and environmental data are collected, using different samplers/equipment.

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

Data capture documentation:

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

Quality checks documentation: Y. Quality checks are carried out annually in ICES WGMEGS.

AR comment: NA

Data storage

National database: National database.

International database: Eggs and Larval ICES Database, for ichthyoplankton sampling data only (<https://www.ices.dk/data/data-portals/Pages/Eggs-and-larvae.aspx>)

Quality checks and data validation documentation:

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

AR comment: NA

Sample storage

Storage description: Samples of zooplankton, and horse mackerel fish ovaries and otoliths are stored at IPMA. Mackerel fish ovaries are shipped for laboratory processing and analysis by WGMEGS partners. Details on these samples are included in the references above.

AR comment: NA

Data processing

Evaluation of data accuracy (bias and precision):

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

Editing and imputation methods:

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

Quality document associated to a dataset:

ICES. 2019. Manual for mackerel and horse mackerel egg surveys, sampling at sea. Series of ICES Survey Protocols SISP 6. 82 pp. <http://doi.org/10.17895/ices.pub.5140>

ICES. 2019. Manual for the AEPM and DEPM estimation of fecundity in mackerel and horse mackerel. Series of ICES Survey Protocols SISP 5. 89 pp. <http://doi.org/10.17895/ices.pub.5139>

Validation of the final dataset: Quality checks are carried out annually in ICES WGMEGS.

AR comment: NA

SDEPM

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: SDEPM
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2023
<p>Short description (max 100 words):</p> <p>The Sardine DEPM (triennial) survey (SDPEM) aims to estimate the spawning stock biomass (SSB) of Atlanto-Iberian sardine (<i>Sardina pilchardus</i>) stock (ICES 27.9.a and 27.8.c-Spain), using the Daily Egg Production Method (DEPM). The survey involves ichthyoplankton sampling at a grid of fixed stations (CalVET+CTD) and underway at the surface (CUFES), and fishing hauls conducted by pelagic or bottom trawling. The samples and data obtained are used for estimating eggs and adult parameters that will allow the calculation of SSB.</p>
Description of the population
<p>Population targeted:</p> <p>Target species: Sardine (<i>Sardina pilchardus</i>) - PIL.</p> <p>Main survey area: Portuguese coast and Spanish Cadiz waters (ICES 9aW and S).</p> <p>Population sampled: Sardine population within the main spawning area covered by the survey, over the continental shelf.</p> <p>Stratification: No stratification is carried out during survey sampling, it is done only at the level of the analyses, upon estimation of DEPM parameters, 3 strata of the Atlantic Iberian stock being commonly considered for the estimation purposes (ICES 8c+9aN, 9aW, 9aS).</p>
AR comment: SDEPM did not take place in 2022
Sampling design and protocols
<p>Sampling design description:</p> <p>See Text Box 2.6 and Table 2.6.</p> <p>See description in:</p> <p>Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. https://doi.org/10.17895/ices.pub.4599.</p> <p>Lasker, R. (1985). An Egg Production Method for Estimating Spawning Biomass of Pelagic Fish: Application to the Northern Anchovy, <i>Engraulis mordax</i>, NOAA Technical Report NMFS, US Department of Commerce, Springfield, VA, USA, 99 pp.</p>

Is the sampling design compliant with the 4S principle? NA – Research survey at sea.

Regional coordination: Coordinated internationally by ICES WGACEGG.

<http://www.ices.dk/community/groups/Pages/WGACEGG.aspx>

Link to sampling design documentation: Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. <https://doi.org/10.17895/ices.pub.4599>.

Compliance with international recommendations: Y. Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. <https://doi.org/10.17895/ices.pub.4599>.

Link to sampling protocol documentation: Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. <https://doi.org/10.17895/ices.pub.4599>.

AR comment: SDEPM did not take place in 2022

Sampling implementation

Recording of refusal rate: NA – Scientific surveys at sea.

Monitoring of sampling progress within the sampling year: NA - Scientific surveys at sea.

AR comment: SDEPM did not take place in 2022

Data capture

Means of data capture: Ichthyoplankton, fish and environmental data are collected, using different samplers/equipment.

Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. <https://doi.org/10.17895/ices.pub.4599>.

Data capture documentation: Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. <https://doi.org/10.17895/ices.pub.4599>.

Quality checks documentation: Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 –

Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. https://doi.org/10.17895/ices.pub.4599 .
AR comment: SDEPM did not take place in 2022
Data storage
National database: National database
International database: NA.
Quality checks and data validation documentation: Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. https://doi.org/10.17895/ices.pub.4599 .
AR comment: SDEPM did not take place in 2022
Sample storage
Storage description: Samples of zooplankton and sardine fish ovaries and otoliths are stored at IPMA. Details on these samples are included in the references above.
Sample analysis: See "Storage description".
AR comment: SDEPM did not take place in 2022
Data processing
Evaluation of data accuracy (bias and precision): Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. https://doi.org/10.17895/ices.pub.4599 .
Editing and imputation methods: Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. https://doi.org/10.17895/ices.pub.4599 .
Quality document associated to a dataset: Massé, J., Uriarte, A., Angélico, M. M., and Carrera, P. (Eds.) 2018. Pelagic survey series for sardine and anchovy in ICES subareas 8 and 9 – Towards an ecosystem approach. ICES Cooperative Research Report No. 332. 268 pp. https://doi.org/10.17895/ices.pub.4599 .
Validation of the final dataset: Quality checks are carried out annually in ICES WGACEGG.
AR comment: SDEPM did not take place in 2022

SAHMAS

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: SAHMAS
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>The spring acoustic survey SAHMAS includes the PELAGO survey carried by Portugal, the PELACUS survey carried out by Spain and the PELGAS survey carried out by France. The main objective of the PELAGO survey carried out by Portugal is the monitoring of the abundance distribution through echo-integration and the study of several biological parameters of small pelagic species. This survey provides abundance at age estimates for the stock assessment of sardine and anchovy. Main target species: sardine - <i>Sardina pilchardus</i> and anchovy - <i>Engraulis encrasicolus</i>. Secondary target species: Horse mackerel, Atlantic chub mackerel, mackerel, Mediterranean horse mackerel, blue jack mackerel, boarfish and bogue. Surveying also considers observations of fish eggs and larvae along the acoustic transects with a CUFES, and the physical, chemical and biological characterization of the pelagic ecosystem. Additionally, census of marine birds and mammals are conducted during the survey trajectory.</p>
Description of the population
<p>Population targeted:</p> <p>Main target species: ANE and PIL Area: 27.9.a (south of the Portuguese northern border). Subareas 9aCN, 9aCS, 9aS</p> <p>Population sampled: Small pelagic species</p> <p>Stratification: N.</p>
AR comment: No deviations to report
Sampling design and protocols
<p>Sampling design description:</p> <p>See Text Box 2.6 and Table 2.6.</p> <p>See description in:</p> <p>ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).</p> <p>https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf</p>

Is the sampling design compliant with the 4S principle? NA – Research survey at sea.

Regional coordination: Coordinated internationally by ICES WGACEGG.

<http://www.ices.dk/community/groups/Pages/WGACEGG.aspx>

Link to sampling design documentation:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Compliance with international recommendations: Y.

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Link to sampling protocol documentation:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

AR comment: No deviations to report

Sampling implementation

Recording of refusal rate: NA - Research surveys at sea.

Monitoring of sampling progress within the sampling year: NA - Research surveys at sea.

AR comment: No deviations to report

Data capture

Means of data capture: Simrad EK80 – frequencies 18, 38, 70, 120 and 200 KHz. Data storage and post-processing software: Movies+/Ecoview. Pelagic trawl. CUFES, continuous underway fish egg sampler, plus coupled temperature, salinity and fluorescence sensors. CTD and Bongo nets.

Data capture documentation:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Quality checks documentation:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

AR comment: No deviations to report

Data storage

National database: National database.

International database: NA.

Quality checks and data validation documentation: Quality check is performed along the process of recording in the database with a second reviewer. Final check is performed with a R-script for outliers checking.

AR comment: No deviations to report

Sample storage

Storage description: Otoliths and plankton stored at IPMA storage facilities, otoliths stored dry or in resin and kept after processing, CUFES plankton samples stored in formalin and processed in 9 months.

Sample analysis: See “sample description”.

AR comment: No deviations to report

Data processing

Evaluation of data accuracy (bias and precision):

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Editing and imputation methods:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Quality document associated to a dataset:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Validation of the final dataset: Data are cross-checked, theoretical length-weight relationships applied outliers are evaluated.

AR comment: No deviations to report

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: NepS
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The Nephrops Survey Offshore Portugal (FU 28-29) (NepS) aims to estimate the relative abundance and to study the distribution and biological characteristics of <i>Nephrops norvegicus</i> (Norway lobster) in Functional Units 28 and 29 (SW and S Portugal). Data are collected for several other demersal fish species and invertebrates, focusing in providing the necessary information for stock assessment of commercial species. This survey is the most important source for biodiversity studies in deep waters (200 – 750 m). This survey constitutes an important source of information for several MSFD descriptors.</p>
Description of the population
<p>Population targeted: Main target species: Norway lobster (<i>Nephrops norvegicus</i>); Main survey area: Functional Units 28 and 29 (SW and S Portugal), 200 – 750 m.</p> <p>Population sampled: Although directed at one single target species, the survey collects data from all species in the continental slope ecosystem.</p> <p>Stratification: N.</p>
AR comment: No deviations.
Sampling design and protocols
<p>Sampling design description:</p> <p>Sampling design based on a grid.</p> <p>See Text Box 2.6 and Table 2.6.</p> <p>See description in:</p> <p>ICES. 2018. Annex 7: FUs 28 and 29 (Southwest and South Portugal) Nephrops offshore Survey (NepS). In Interim Report of the Working Group on Nephrops Surveys (WGNEPS). WGNEPS 2017 Report, 28 November – 1 December 2017. Heraklion, Greece. ICES CM 2017/SSGIEOM:19, 71 – 78.</p> <p>Is the sampling design compliant with the 4S principle? NA - Research survey at sea.</p> <p>Regional coordination: Integrated in WGNEPS that coordinates Nephrops surveys.</p>

<p>Link to sampling design documentation:</p> <p>ICES. 2018. Annex 7: FUs 28 and 29 (Southwest and South Portugal) Nephrops offshore Survey (NepS). In Interim Report of the Working Group on Nephrops Surveys (WGNEPS). WGNEPS 2017 Report, 28 November – 1 December 2017. Heraklion, Greece. ICES CM 2017/SSGIEOM:19, 71 – 78.</p> <p>Compliance with international recommendations: Y. See references above in “Sampling design description”.</p> <p>Link to sampling protocol documentation: See references above in “Sampling design description”.</p>
AR comment: No deviations.
Sampling implementation
<p>Recording of refusal rate: NA - Research survey at sea.</p> <p>Monitoring of sampling progress within the sampling year: NA - Research survey at sea.</p>
AR comment: NA
Data capture
<p>Means of data capture:</p> <p>Length: measuring board (mm) and calliper (0.01 mm) Individual weight: scales (0.1 g)</p> <p>Data capture documentation: See references above in “Sampling design description”.</p> <p>Quality checks documentation: Quality check is performed along the process of recording in the database and data analysis, with a second reviewer and outliers checking.</p>
AR comment: No deviations.
Data storage
<p>National database: Database CRUZDEM in MSAccess. No website access.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: Quality check is performed along the process of recording in the database and data analysis, with a second reviewer and outliers checking.</p>
AR comment: No deviations.
Sample storage

Storage description:

- Age structures (otoliths and ilicia), stored dry
- Gonads stored in formol until processing
- Body parts (e.g., *Nephrops* appendix masculine) frozen or preserved in alcohol
- Stomach frozen
- Specimens for later studies frozen
- All processed within one year

Sample analysis: See “Sample analysis”.

AR comment: No deviations.

Data processing

Evaluation of data accuracy (bias and precision): See references above in “Sampling design description”. Process under internal re-evaluation. Documentation will be developed in 2022-2024.

Editing and imputation methods: See references above in “Sampling design description”. Process under internal re-evaluation. Documentation will be developed in 2022-2024.

Quality document associated to a dataset: See references above in “Sampling design description”. Process under internal re-evaluation. Documentation will be developed in 2022-2024.

Validation of the final dataset: Data are cross-checked, theoretical length-weight relationships applied outliers are evaluated.

AR comment: No deviations.

MS: PRT
Region: Other regions
Sampling scheme identifier: FCGS
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): <p>The objective of the Flemish Cap Groundfish Survey (FCGS) is to know the stock status of target species: their abundance, biomass and demographic structure and the hydrographical and environmental conditions on the Flemish Cap Bank (NAFO Division 3M).</p>
Description of the population
Population targeted: <p><u>Target species:</u> Cod (<i>Gadus morhua</i>), Redfish (<i>Sebastes mentella</i>, <i>S. fasciatus</i> and <i>S. norvegicus</i>), American plaice (<i>Hippoglossoides platessoides</i>), Greenland halibut (<i>Reinhardtius hippoglossoides</i>), Roughhead grenadier (<i>Macrourus berglax</i>) and Northern shrimp (<i>Pandalus borealis</i>)</p> <p><u>Area:</u> Flemish Cap Bank (NAFO Regulatory Area Division 3M). Flemish Cap is entirely outside any 200-mile EEZ, and the exploitation of its resources is regulated by the NAFO.</p> <p><u>Dates:</u> The survey starts in the second half of June, and needs 35 days at sea.</p> <p>Population sampled: All fish, cephalopods, shrimp and non-commercial invertebrates.</p> <p>Flemish Cap is an isolated bank on the American continental shelf, with an approximated surface of 17 000 squared nautical miles within the 1460 m (800 fathoms) isobath and 10 555 within the 730 m (400 fathoms). Flemish Pass, an area deeper than 1000 m, separates it from the Newfoundland Grand Bank and gives it its isolated character by limiting the migration of many species, particularly those occurring in the shallowest zones.</p> <p>The trawling gear used is the Lofoten and the cod-end mesh size is 35 mm. An auxiliary net bag of 10 mm mesh size is used to retain the youngest individuals of shrimp escaping throw a small square of the cod-end</p> <p>Stratification: Random stratified survey of the Flemish Cap area until 1460 m (800 fathoms) depth, making 181 bottom trawl hauls with a Lofoten fishing gear, at daytime: between 6:00 and 22:00, and 30 minutes effective fishing time.</p> <p>The adopted stratification of Flemish Cap considers 19 strata up to 730 m (400 fathoms) depth. Stratification was later extended to cover up to 1460 m (800 fathoms) depth, considering 39 strata. Two strata of this bank (numbers 26 and 27) have fishing grounds unsuitable for trawling due to the huge abundance of sponges, and the same goes for the five</p>

strata belonging to the Beothuk Knoll (numbers 35–39) due, presumably, to the massive presence of corals.

All these strata have been removed from the survey, resulting in the current 32 strata surveyed. Each stratum is divided in rectangles of equal area. i.e. the number of rectangles is proportional to the stratum area. A total of 478 rectangles are therefore considered in the current survey design. Each rectangle is in turn divided in 10 fishing units of equal area, leading to 4780 possible bottom trawl fishing hauls.

AR comment: No deviations to report

Sampling design and protocols

Sampling design description:

Type of survey: Bottom trawl fishing hauls that lasting for 30 minutes and are distributed using a stratified random sampling scheme. The trawling gear used is the Lofoten. Temperature and salinity profiles are taken with a CTD according to a predefined square grid. The survey starts in the second half of June, and needs 35 days at sea.

Trawl station methodology: 181 hauls will be selected at random, 120 of them in less than 730 m depth.

The selection of the hauls is set with the following conditions:

- The number of hauls in each stratum is fixed, distributed proportionately to the number of units, and ensuring at least two hauls by stratum.
- Hauls (fishing units) are randomly chosen within each stratum with the following constraints: only one haul can be selected within a given rectangle, and two hauls cannot coincide in adjacent fishing units.
- Information from previous surveys and commercial fishing is used to eliminate hauls in unsuitable fishing grounds.
- The allocation of the hauls into each fishing unit could be made more accurate using the bathymetry of the area obtained by the NEREIDA project, reducing the risks of snagging in the bottom.

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

Regional coordination: N. There is not signed agreement about task sharing.

The survey is carried out by Spain and Portugal and annually there is a joint coordination meeting ad hoc for this survey (FCCM). Spain contributes with vessel, staff and samples analysis in laboratory and Portugal contributes with staff and samples analysis in laboratory.

Link to sampling design documentation: <https://archive.nafo.int/open/studies/s46/S46.pdf>

Compliance with international recommendations: Y. The results of the survey are used by the NAFO Scientific Council to make an assessment on the state of the resources, which is the key tool for the NAFO Commission to take the appropriate management measures.

Link to sampling protocol documentation:
<https://archive.nafo.int/open/studies/s46/S46.pdf>

AR comment: No deviations to report

Sampling implementation

Recording of refusal rate: NA.

Monitoring of sampling progress within the sampling year:

The criterion used to change the position of a previously selected random haul has always been the information from the commercial fishing and from previous surveys about the suitability of the bottom trawling. This information is contrasted with the more detailed bathymetric charts of the bottom that have been developed in the project NEREIDA.

Criteria for rejecting a haul:

- Snag of the trawling gear in the bottom;
- Damages in the cod-end or severe damages in large sections of the wings or belly;
- Less than 20 minutes of effective trawling time;
- Gear malfunction, i.e., when it is considered that gear contact with bottom was not correct, or the geometry of the gear was not maintained properly through the whole trawl.

Rejected fishing hauls means that, because standard conditions were not achieved, such station cannot be used to quantify the biomass and abundance neither to determine the structure of the population. However, the specimens caught in any non-valid hauls can be used to make all kind of biological sampling.

The order of execution of selected stations is determined during the survey, setting each day the hauls to be held the next day, trying to minimize the routes between stations.

A detailed plan of the order of the stations is impractical because it is necessary to make changes due to unforeseen malfunction of the gear (e.g. obstruction, breakages...).

The distance travelled in each haul is the geographical distance between the GPS positions of the start of the haul (when the gear comes into contact with the bottom and it acquires its characteristic shape) and the start of the haulin (when cable starts to be recovered).

The development of the survey depends on the weather conditions and other factors (breakdowns, gear damages, etc.), so that the final fishing plan is decided on board day to day in order to optimize the use of the working day.

Every year, issues about logistic, sampling plan and protocols are discussed in the coordination meeting (FCCM) (Mar-Apr) previously to the survey (Jun-Jul).

AR comment: No deviations to report

Data capture

Means of data capture:

Trawl hauls

The trawling gear used is the Lofoten and the the cod-end mesh size is 35 mm. An auxiliary net bag of 10 mm mesh size is used to retain the youngest individuals of shrimp escaping throw a small square of the cod-end.

ScanMar and, ITI sensors are used to monitor the gear.

Fishing hauls and Catch Record. A haul's data form is filled in each set. It will contain information gathered in the bridge during and immediately after finishing the haul, as well as catch information by species. This form is available in the sampling area before sorting the catch starts. There are two forms, one for depth < 700 m. and another one for > 700 m. There is a space reserved for sums and calculations. Catch record. All fish species, as well the commercial cephalopods and crustacean are recorded.

Biological data

Length sampling. The length frequency of each species is recorded in separated data forms. Length measurements are made by at least two persons, so that always a person measure and other records. The lengths shall be recorded in the appropriate data form for this purpose After the measurement, it is clearly indicated the beginning and end of the size range and measures are counted and registered the total number of individuals measured by size. For species with sex discrimination, frequencies are recorded in separate columns with indication of the sex on headings.

Biological sampling. In each haul a full biological sampling is done for the most of target species by two observers and always a person measure and other writes down data in the form. Control sheets for each species are available at the beginning of each day based on data collected from previous hauls.

Length data is collected using a measuring board for fish and cephalopods species. For crustaceans, sampling is made using a digital caliper connected to a laptop that records length data automatically to an Excel file.

Weight data is collected using marine scales.

Stomach contents

Stomach sampling. This sampling is done every two years as a minimum, and it is under the exclusive task of two observers that always a person measure and other records data in a specific form. Sampling data is recorded in a specific software of the Trophic Relationships.

Benthos in the trawl

Benthonic invertebrates. Non-commercial invertebrates, sponges and corals among them, are recorded in a specific data form. Catch records are written down in a specific data form where weight and number of each best identified group is noted, as well as any observation. A photographic record is made of the whole invertebrate catch.

Litter items

Marine litter data is registered and written down in the hauls form for their classification according to the established code. In addition, a photographic record of it is made.

Hydrography-CTD

Temperature and salinity profile using a CTD. The files generated in each station *.hex must be checked and converted to ASCII files by means of the SBD data processing program.

All survey data are captured using specific recording specific paper forms.

All data recorded during the survey are entered in a computer as soon as possible, as data is validated and potential errors corrected in an easy way. The data collected each day is always inputted before the next day work starts, to allow updating control of samples already taken.

After stored, data from each fishing haul will be printed to verify that the stored information is equal to that in the forms. Printing formats should be similar to that of the forms in use.

Data are stored and initially managed in an ad hoc software called ARGO. The system provides a reliable way of data storage and elaboration of results, as well as the possibility of transferring data to any other programs.

Once they are corrected, they are transferred to the shared database SIRENO, which is managed by the IEO.

Data capture documentation:

<https://archive.nafo.int/open/studies/s46/S46.pdf>

Survey Plan FCGS 2021 (Spanish)

http://www.ieo.es/es_ES/web/ieo/investigacion

Quality checks documentation:

<https://archive.nafo.int/open/studies/s46/S46.pdf>

(See: Validation of Survey Results, pag. 14)

All data recorded during the survey are entered in a computer as soon as possible, data is validated and potential errors corrected in an easy way. The data collected each day is always inputted before the next day work starts, to allow updating control of samples already taken.

After stored, data from each fishing haul will be printed to verify that the stored information is equal to that in the forms. Printing formats should be similar to that of the forms in use.

Data are stored and initially managed in an ad hoc program, ARGO. The system provides a reliable way of data storage and elaboration of results, as well as the possibility of transferring data to any other programs.

Once they are corrected, they are transferred to the shared database SIRENO, which is managed by the IEO.

AR comment: No deviations to report

Data storage

National database:

Spanish Database: SIRENO (IEO)

Survey Database: ARGO (IIM-CSIC)

Stomach contents: DataBase Trophic Relationships (IEO)

International database:

VME Indicators: ICES VME database (<http://vme.ices.dk>)

Hydrography-CTD: IODE/SeaDataNet

Quality checks and data validation documentation:

<https://archive.nafo.int/open/studies/s46/S46.pdf>

(See: Validation of Survey Results, pag. 14)

All data recorded during the survey are entered in a computer as soon as possible, data is validated and potential errors corrected in an easy way. The data collected each day is always inputted before the next day work starts, to allow updating control of samples already taken.

After stored, data from each fishing haul will be printed to verify that the stored information is equal to that in the forms. Printing formats should be similar to that of the forms in use.

Data are stored and initially managed in an ad hoc program, ARGO. The system provides a reliable way of data storage and elaboration of results, as well as the possibility of transferring data to any other programs.

Once they are corrected, they are transferred to the shared database SIRENO, which is managed by the IEO.

AR comment: No deviations to report

Sample storage

Storage description:

Age

Otoliths collected on board are kept duly labelled waxed paper envelopes and later in the laboratory they are classified and stored in boxes for each species before reading.

Maturity

Gonads collected on board are kept in micro-perforated duly labelled plastic bags that are fixed in formaldehyde solution using a special mask during sample handling. Gonads on board are kept in containers by species.

At the lab, ovary samples are stored in 70° alcohol, in outdoor storage rooms located at labs. Due to lack of space, only a sample of the gonads that may be of interest for further studies are kept. On the other hand, all of the histological sections and slides are stored.

The samples of otoliths and gonads are stored in the three Institutes of MS participants: IEO and IIM-CSIC (Vigo, Spain) and IPMA (Lisbon, Portugal) in according of the task sharing by species.

Shrimp (*Pandalus borealis*) samples

Additional samples are taken for study in laboratory to calculate the length-weight relationship. These samples are frozen on board. Samples are taken from all strata. After the survey samples are stored in freezers at the lab (IEO: C.O. Vigo) until they are sampled.

Benthonic invertebrates

All specimens of less frequent species are retained, particularly those from species not included in the invertebrates' identification cards or those with uncertain or incomplete classification. Samples are stored in plastic bags, labelled with survey, haul and species, and they are preserved in the appropriate conservation media (alcohol and formalin).

Taxonomy

If some species are not identified on board, individuals are labelled, frozen and stored in boxes for their study in the lab. After the survey samples are stored in freezers at the lab (IEO: C.O. Vigo) until they are identified by experts.

Sample analysis:

To improve the quality of the maturity data, a workshop is held prior to the surveys in NAFO waters to review the different maturity stages of the main bony fish species, and of sharks and rays both oviparous and ovoviviparous.

Maturity manuals for each of the species are available onboard to scientific staff for each species. Each maturity stage characteristics are explained and illustrated with photographs taken of individuals of different sizes sampled in the study area. The gonad is shown inside the fish as seen in biological sampling, and also outside the fish and in detail. Those stages for which photographs of individuals captured in the study area are not available are illustrated with photographs of the reports of the ICES maturity workshops that were carried out for the correspondent species.

<https://archive.nafo.int/open/studies/s46/S46.pdf>

Manual ESP_IEO_P5_AtSea_Maturity (Spanish)

http://www.ieo.es/es_ES/web/ieo/investigacion

Survey Plan FCGS 2021 (Spanish) http://www.ieo.es/es_ES/web/ieo/investigacion
AR comment: No deviations to report
Data processing
<p>Evaluation of data accuracy (bias and precision): Y.</p> <p>https://archive.nafo.int/open/studies/s46/S46.pdf (See: Data analysis, pag 13)</p> <p>Editing and imputation methods: Y.</p> <p>https://archive.nafo.int/open/studies/s46/S46.pdf (See: Data analysis, pag 13)</p> <p>Quality document associated to a dataset: N.</p> <p>Validation of the final dataset: Final datasets are validated taking into account the guidelines and formats of SC- NAFO. https://archive.nafo.int/open/studies/s46/S46.pdf (See: Validation of Survey Results, pag 14)</p>
AR comment: No deviations to report

MS : PRT
Region: North-East Atlantic
Sampling scheme identifier: IBTS_Q4
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
<p>Short description (max 100 words):</p> <p>The main objectives of the survey Western IBTS 4th quarter (IBTS_Q4) are to estimate the abundance and distribution of the most important commercial species in the Portuguese trawl fishery: hake, horse mackerel and blue whiting, as well as their recruitment indices. Data is collected for several other demersal fish species and invertebrates, focusing in providing the necessary information for stock assessment of commercial species. This survey is the most important source regarding information for biodiversity, biological parameters, food habits and distribution for a large number of marine species on the Portuguese shelf and slope. Data collected in this survey is an input for several MSFD descriptors.</p>
Description of the population
<p>Population targeted: Main target species: Hake (<i>Merluccius merluccius</i>), Blue whiting (<i>Micromesistius poutassou</i>), Blue jack mackerel (<i>Trachurus picturatus</i>), Horse mackerel (<i>Trachurus trachurus</i>), Four-spot megrim (<i>Lepidorhombus boscii</i>), Megrim (<i>Lepidorhombus whiffiagonis</i>), Black-bellied angler (<i>Lophius budegassa</i>), Anglerfish (<i>Lophius piscatorius</i>), Atlantic chub mackerel (<i>Scomber colias</i>), Mackerel (<i>Scomber scombrus</i>), Bluemouth rockfish (<i>Helicolenus dactylopterus</i>), Sea breams (<i>Sparidae</i>), Pouting (<i>Trisopterus luscus</i>), John Dory (<i>Zeus faber</i>), Thornback ray (<i>Raja clavata</i>), Spotted ray (<i>Raja montagui</i>), Lesser-spotted dogfish (<i>Scyliorhinus canicula</i>), Common squid (<i>Loligo vulgaris</i>), common octopus (<i>Octopus vulgaris</i>), Norway lobster (<i>Nephrops norvegicus</i>), Deepwater rose shrimp (<i>Parapenaeus longirostris</i>).</p> <p>Main survey area: Portuguese continental waters, 27.9a, from 20 m to 500 m depth</p> <p>Population sampled: Ecosystem component: demersal</p> <p>Stratification: 36 strata selected as 12 geographical sectors, subdivided in 3 depth areas (20-100m; 101-200m, 201-500m).</p>
AR comment: Due to several bad weather events, some strata where subsampled, but only 3 strata without sampling.
Sampling design and protocols
<p>Sampling design description:</p> <p>See Table 2.6 and Text Box 2.6.</p>

See description in:

ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. <http://doi.org/10.17895/ices.pub.3519>

Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

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

Regional coordination: Coordinated internationally by ICES IBTSWG.

Link to sampling design documentation: ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp.

<http://doi.org/10.17895/ices.pub.3519> Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

Compliance with international recommendations: Y.

Link to sampling protocol documentation: ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp.

<http://doi.org/10.17895/ices.pub.3519>

Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: NA.

Monitoring of sampling progress within the sampling year: NA.

AR comment: NA

Data capture

Means of data capture: ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. <http://doi.org/10.17895/ices.pub.3519>

Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

Data capture documentation: ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp.

<http://doi.org/10.17895/ices.pub.3519>

<p>Available on the repository link: https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp)</p> <p>Quality checks documentation: ICES.2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. http://doi.org/10.17895/ices.pub.3519</p> <p>Available on the repository link: https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp)</p>
AR comment: No deviations
Data storage
<p>National database: Database CRUZDEM in MSAccess. No website access.</p> <p>International database: DATRAS (https://www.ices.dk/data/data-portals/Pages/DATRAS.aspx)</p> <p>Quality checks and data validation documentation: ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. http://doi.org/10.17895/ices.pub.3519</p> <p>Available on the repository link: https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp)</p>
AR comment: No deviations.
Sample storage
<p>Storage description: Documentation will be developed in 2022-2024.</p> <p>Sample analysis: Documentation will be developed in 2022-2024.</p>
AR comment: NA
Data processing
<p>Evaluation of data accuracy (bias and precision):</p> <p>ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. http://doi.org/10.17895/ices.pub.3519</p> <p>Available on the repository link: https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp)</p> <p>Process under internal re-evaluation. Documentation will be developed in 2022-2024.</p>

Editing and imputation methods:

ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. <http://doi.org/10.17895/ices.pub.3519>

Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

Process under internal re-evaluation. Documentation will be developed in 2022-2024.

Quality document associated to a dataset:

ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. <http://doi.org/10.17895/ices.pub.3519>

Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

Process under internal re-evaluation. Documentation will be developed in 2022-2024.

Validation of the final dataset:

ICES. 2017. Manual of the IBTS North Eastern Atlantic Surveys. Series of ICES Survey Protocols SISP 15. 92 pp. <http://doi.org/10.17895/ices.pub.3519>

Available on the repository link:

[https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+\(sisp\)](https://www.ices.dk/sites/pub/publication%20reports/forms/defaultone.aspx?rootfolder=/sites/pub/publication+reports/ices+survey+protocols+(sisp))

Data are cross-checked, theoretical length-weight relationships applied outliers are evaluated.

AR comment: No deviations

IBERAS

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Acoustic Survey for Juvenile Anchovy Sardine in the Western Iberia (IBERAS)
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): The main objective of IBERAS is to get a recruitment index for sardine (<i>Sardina pilchardus</i>) and anchovy (<i>Engraulis encrasicolus</i>) in Atlantic waters of the Iberian Peninsula, aiming to improve the estimation of the strength of the recruitment of the Iberoatlantic sardine and the western component of the south anchovy population.
Description of the population
<p>Population targeted:</p> <ul style="list-style-type: none"> • Main species target: sardine (<i>Sardina pilchardus</i>) and anchovy (<i>Engraulis encrasicolus</i>); • Secondary species: Atlantic chub mackerel (<i>Scomber colias</i>) and horse mackerel (<i>Trachurus trachurus</i>). Other pelagic fish in catches are mackerel, (<i>Scomber scombrus</i>), boarfish (<i>Capros aper</i>), blue jack mackerel (<i>Trachurus picturatus</i>), bogue (<i>Boops boops</i>), and longspine snipe fish (<i>Macroramphosus</i> sp.) <p>Population sampled: Small pelagic species</p> <p>Stratification: N.</p>
AR comment: No deviations
Sampling design and protocols
<p>Sampling design description:</p> <p>See Text Box 2.6 and Table 2.6.</p> <p>See description in:</p> <p>ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).</p> <p>https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf</p> <p>Is the sampling design compliant with the 4S principle? NA – Research survey at sea.</p> <p>Regional coordination: Coordinated internationally by ICES WGACEGG.</p>

<http://www.ices.dk/community/groups/Pages/WGACEGG.aspx>

Link to sampling design documentation:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Compliance with international recommendations: Y.

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Link to sampling protocol documentation:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

AR comment: Due to shipyard delay, RV Angeles Alvariño was not available for the Spanish survey JUVENA. Therefore, RV Ramón Margalef undertook that survey and was not available for IBERAS. RV Angeles Alvariño was then assigned to perform IBERAS when available and because of that IBERAS was delayed. Due to additional unexpected problems in the diesel engines, the duration of the survey was shortened to 9 days including calibration. The surveyed area had to be reduced accordingly, to cover only the main recruitment area of sardine on the west Iberian coast from latitude 41.7 to 38.1°N. As the area 9aCN was fully covered, the data for the sardine stock assessment was not compromised.

Sampling implementation

Recording of refusal rate: NA.

Monitoring of sampling progress within the sampling year: NA.

AR comment: No deviations

Data capture

Means of data capture: Simrad EK80 – frequencies 18, 38, 70, 120 and 200 KHz. Data storage and post-processing software: Movies+/Ecoview. Pelagic trawl. CUFES, continuous underway fish egg sampler, plus coupled temperature, salinity and fluorescence sensors. CTD and Bongo nets. **Data capture documentation:**

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Quality checks documentation:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

AR comment: No deviations

Data storage

National database: National database.

International database: NA.

Quality checks and data validation documentation: Quality check is performed along the process of recording in the database with a second reviewer. Final check is performed with a R-script for outliers checking.

AR comment: No deviations

Sample storage

Storage description: Otoliths and plankton stored at IPMA storage facilities, otoliths stored dry or in resin and are kept after processing.

Sample analysis: See “sample description”.

AR comment: No deviations

Data processing

Evaluation of data accuracy (bias and precision):

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Editing and imputation methods:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Quality document associated to a dataset:

ICES Survey Protocols – Manual for Acoustic Surveys Coordinated under ICES Working Group on Acoustic and Egg Surveys for Small Pelagic Fish (WGACEGG).

[https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20\(TIMES\)/TIMES64.pdf](https://www.ices.dk/sites/pub/Publication%20Reports/Techniques%20in%20Marine%20Environmental%20Sciences%20(TIMES)/TIMES64.pdf)

Validation of the final dataset: Data are cross-checked, theoretical length-weight relationships applied outliers are evaluated.

AR comment: No deviations

ARQDAÇO

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: ARQDAÇO
Sampling scheme type: Research survey at sea
Observation type: Scientific observer at sea (on commercial or scientific vessels)
Time period of validity: 2022-2024
Short description (max 100 words): Sampling scheme (Work Plan – Table 2.6) aiming at collecting data and samples on demersal fishes caught by set longline. The scheme covers island shelves of all 9 island and 3 seamounts of the Azores archipelago (North-East Atlantic).
Description of the population
Population targeted: The main target species of ARQDAÇO survey are demersal fishes in the Azores region, from surface to around 1200 m depth, around the coasts of all 9 islands and 3 offshore seamounts of the archipelago. Population sampled: ARQDAÇO survey is a multispecies survey targeting demersal fishes. Stratification: Population stratified in 5 geographical areas (western, central and eastern island groups, central and eastern seamounts). Each fishing haul is stratified by depth (50 m intervals).
AR comment: ARQDAÇO 2022 spring monitoring campaign for the abundance of demersal fish in the Azores archipelago was not conducted.
Sampling design and protocols
Sampling design description: The set longline surveys are conducted annually, during spring time. The surveys follow a stratified random design, to sample demersal fishes around coastal shelves of all 9 islands, and 3 seamounts in the Azores archipelago. Based on their geographical characteristics, a total of 5 areas are sampled, three of which are divided in subareas (Area I: subareas Princesa Alice and Azores banks; Area II: subareas Faial-Pico, Graciosa, São Jorge, Terceira islands; Area III: subareas São Miguel, Santa Maria islands; Area IV: Mar da Prata bank; Area VI: Flores-Corvo islands. Please note that few surveys in the past covered Area V: other Azorean seamounts). The number of fishing hauls - total of 34 - is allocated proportionally to the area/subarea size; the location of fishing hauls is selected randomly within each area/subarea. The survey is stratified by depth, using depth intervals of 50 m each (stratum 1: 0-50m, stratum 2: 51-100 m, etc). The survey mostly covers depths to 600-800m, and includes one fishing haul reaching 1200m for each subarea. The fishing sets are deployed perpendicularly to the depth contours, going from the shallower to the deeper depth strata.

PSU - Demersal fishes. For each fishing haul and depth stratum all fishes are identified to the lowest taxonomic level (species or genus), the total number and weight of fishes is recorded. All fishes are measured (length). For each depth stratum, a subsample of fishes for each species is randomly selected - up to 30 individuals of different sizes whenever possible - for detailed sampling (length, individual weight, sex, maturation stage, otoliths, portion of tissue for further analyses, i.e., genetic analyses). In the shallower depth strata, fish are tagged with traditional spaghetti tags. Individuals in good conditions - active after retrieval from longline - are randomly selected and measured (length), tagged and released.

SSU - By-catch. All organisms collected as by-catch (such as corals, and other invertebrates) are recorded during hauling, and are preserved for further identification and studies.

A manual of the survey design and methods exists but is only available in Portuguese and suits as an internal document with no hyperlink. Nonetheless, at [Cruzeiros – Okeanos \(uac.pt\)](#) a link is available to the most recent survey annual report published (in Portuguese).

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

Regional coordination: NA.

Link to sampling design documentation: Please see Sampling Design description above.

Compliance with international recommendations: N. Please see Sampling Design description above.

Link to sampling protocol documentation: Please see Sampling Design description above.

Compliance with international recommendations: Please see Sampling Design description above.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: NA.

Monitoring of sampling progress within the sampling year: NA.

AR comment: Not applicable.

Data capture

Means of data capture:

- Echosounder to map bathymetry before fishing haul;
- Dedicated software to record geographical position and other characteristics (latitude, longitude, time, depth) of longline fishing gear components;
- Tablet with dedicated software for counting hooks for fishing effort calculations;
- Measuring board for fish length;
- Weight balance (for total fish weight/stratum: balance sensitivity to 0,001 kg; for individual fish weight sensitivity to 0,001 gr);

- Dissection tools for determining sex, maturation stages, and for collecting otoliths and pieces of muscle;
- Tools for tagging (spaghetti tags, tag gun);
- Ethanol and formalin to preserve by-catch organisms and pieces of muscle;
- Means for preserving and labelling samples: paper bags (otoliths), plastic bags or plastic tubes/*eppendorf* tubes (pieces of muscle), vegetable paper (labels).

Data capture documentation:

Hook conditions are recorded while the sampling gear is being retrieved, to classify hooks as baited, unbaited, with fish, or ineffective (i.e., missing, broken or tangled). All fish are tallied by species and strata, measured, and weighed. Fish are identified to the lowest taxonomic level (species or genus), following Compagno (1984a, 1984b, 2005), Whitehead et al., (1984, 1986). Body size is measured in all fishes: total length, or fork length, or pre-anal fin length in teleost fishes; total and pre-caudal length in elasmobranchs. Sex is determined by macroscopic observation of the gonads for teleosts, and based on presence/absence of external copulatory organs for elasmobranchs. Gonadal maturation stages are determined following Holden and Raitt (1974) for teleosts, and Stehmann (2002) for elasmobranchs.

References cited:

Compagno, L.J.V. 1984a. FAO species catalogue. Vol.4, Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1—Hexanchiformes to Lamniformes. FAO Fish Synopses, 125(4(1)): 1–249.

Compagno, L.J.V. 1984b. FAO species catalogue. Vol.4, Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2—Carcharhiniformes. FAO Fish Synopses 125(4(2)): 251–625.

Compagno L., M. Dando & S. Fowler 2005. Sharks of the world. A field guide. Collins, London, UK. 368 pp.

Holden MJ, Raitt DFS. 1974. Manual of fisheries science. Part 2- Methods of resource investigation and their application. Rome: Food and Agriculture Organization of the United Nations.

Stehmann, M.F.W., 2002. Proposal of a maturity stages scale for oviparous and viviparous cartilaginous fishes (Pisces, Chondrichthyes). Arch. Fish. Mar. Res. 50(1):23-48.

Whitehead, P.J., M. L. Bauchot, J.C. Hureau, J. Nielsen & E. Tortonese (Eds.) 1984–1986. Fishes of the North-Eastern Atlantic and the Mediterranean, vols. I–III. UNESCO, Paris, pp. 1–1473.

Quality checks documentation: NA.

AR comment: No deviations.

Data storage
<p>National database: NA.</p> <p>International database: NA.</p> <p>Quality checks and data validation documentation: NA.</p>
AR comment: Not applicable.
Sample storage
<p>Storage description:</p> <p>Pieces of fish muscle are collected and stored in alcohol 96%, at 4°C temperature. Fish otoliths are collected and stored in paper bags at room temperature. By-catch organisms are preserved in ethanol, formalin or frozen at -20°C. The samples are maintained and stored at the facilities of IMAR-Instituto do Mar, Rua Prof. Dr. F. Machado 4, 9901-862 Horta, and can be accessed upon request.</p> <p>No link available on sample stored.</p> <p>Sample analysis:</p> <p>Readings of fish otoliths of some commercial species are regularly performed, using a stereomicroscope for otolith analysis of up to 120 individuals/year (<i>Pagellus acarne</i>, <i>Pontinus kuhlii</i>, <i>Lepidopus caudatus</i>, <i>Pagrus pagrus</i>, <i>Beryx splendens</i>, <i>Beryx decadactylus</i>, <i>Phycis phycis</i>) and up to 250 individuals for the most abundant species (<i>P. bogaraveo</i> and <i>H. dactylopterus</i>).</p> <p>When possible, genetic analyses are performed to clarify taxonomic uncertainties. Muscle samples are processed to extract DNA, and further analyses (i.e., mtDNA sequencing, DNA barcoding, etc) are conducted for species identification.</p> <p>By catch is identified to the lowest possible taxonomic level and used for reproductive and age analyses through histological analyses and C14 dating analyses.</p>
AR comment: No deviations.
Data processing
<p>Evaluation of data accuracy (bias and precision): NA.</p> <p>Editing and imputation methods: NA.</p> <p>Quality document associated to a dataset: N.</p> <p>Validation of the final dataset: Survey data are stored in an institutional database. The hired technician dedicated to demersal fish surveys is responsible for data insertion and correction.</p>
AR comment: No deviations.

ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC DATA SAMPLING SCHEME

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

Fisheries

Survey Specifications
<p><i>'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection for fishing activities and processing, as in the EU MAP Delegated Decision annex.</i></p> <p><i>'Sampling scheme' refers to the survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.</i></p> <p><i>'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.</i></p> <p><i>'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions, put 'All supra regions'.</i></p>
Sector name(s): Fisheries
Sampling scheme: Census
Variables: Variables refer to Tables 7, 9 of the EU MAP Delegated Decision annex.
Supra region(s): All supra regions
Survey planning:
Statistical procedure is censitary so no sample is defined.
AR comment: No deviations to report
Survey design and strategy:
Data sources used for the estimation of economic variables are administrative data, logbooks, sales notes and surveys addressed to all vessel owners. The basic unit for the data collection is the vessel and the target population is constituted by all active and inactive vessels listed in the Union Fishing Fleet

Register on 31 December of the reporting year and other vessels that have fished for at least one day during the reporting year.

Variables related to fleet capacity are collected from the National administrative database while effort and landings are obtained from sales notes and logbooks. These data are provided by the controlling body under Regulation (EU) n. ° 1224/2009 (DGRM) which has the data stored in its own database.

Social variables of the engaged crew are obtained from administrative data recorded on the National System of Vessels and Maritime (SNEM) database, owned by DGRM.

An annual survey is conducted by DGRM to collect socio-economic information. The questionnaires are available to all active vessel owners on the [BMAR](#) platform. Since 2021, answering the questionnaire is required by national law to obtain a fishing licence, being expected an increase in the response rate. In order to achieve high quality responses from shipowners, the questionnaire design will be improved. The data is validated with several checks: the survey does not allow filling in impossible/unreasonable values; manual checks are carried out in relation to the consistency of the data; historical analysis and coherence comparison with administrative data (e.g. declared revenues against sum of sales notes, fuel use against the administrative records maintained by DGRM in relation to the reimbursement of excise taxes to fishermen).

To improve the response rate of questionnaires, the survey is planned in waves. A first wave with the initial contact, consisting of a cover letter/email explaining the purpose of the survey. A second wave, consisting of an email to the professional organizations and the Regional Directorates of the Ministry, approaching to 'push' for higher response. In some cases, the professional organizations receive the information from the owners and fill in the forms on their behalf. And, a third wave, consisting of a reminder postcard/email/phone.

In some cases, the professional organizations receive the information from the owners and fill in the forms on their behalf. And, a third wave, consisting of a reminder postcard/email/phone.

AR comment: No deviations to report.

Estimation design

The stratification is based on vessel size, gear and supra-region. The segmentation of the population for the survey design is more detailed than what is required by EUMAP in order to achieve better estimation. The following further details are distinguished:

- The EUMAP size class 0-10m is split into two size classes of 0-7m and 7-10m.
- DFN class distinguishes DFN and MINHO-PV, a specific type of drift nets.
- DTS class distinguishes four types of bottom trawls – general, crustaceans, fish and various.
- MGP is split into MGO and MGP.
- PS is split into two types of purse seines.

An SQL code has been designed for estimation of missing data and calculation of segment and national totals.

The methodology used to deal with non-responses and incorrect values is described point 5.3.2 of the

Handbook on sampling design (Mean imputation).
AR comment: No deviations to report.
Error checks
<p>Quality control is performed on the survey responses through a script that relates the inputs from each survey and also compares them with administrative data. Early detection of these errors allows for timely action to contact respondents to correct the issues.</p> <p>The database is programmed in Oracle and contains internal routines for the detection of basic errors. Also checks are performed using R and SQL routines.</p>
AR comment: No deviations to report.
Data storage and documentation
<p>All data processed under the socioeconomic data collection is stored on DGRM database of the electronic platform BMAR one-stop-shop.</p> <p>Information related to the data collection program can be found on the web pages: National Data Collection Program Survey on socio-economic data of the national fishing fleet</p>
AR comment: No deviations to report.
Revision
As a Datawarehouse is under development and the methodology will run on this new platform, the methodology will be reviewed during the Workplan period.
AR comment: No deviations to report. DWH is still under development
Confidentiality
<p>Portuguese Fisheries Administration acts as the National Authority for the production of statistical data and all internal procedures are governed by the same principles as the statistical authorities regarding data confidentiality, as provided for in the Regulation of European Statistics and in the National Statistical System (https:// www.dgrm.mm.gov.pt/web/guest/activity).</p> <p>According the National Law, each register/value corresponding to less than 3 entities is considered as</p>

confidential. For that reason, clustering is necessary to report socioeconomic variables. The clustering scheme is based on the aggregation of segments similar to other segments and is described on text box 5.2. This rule is always used unless there is a permission from the vessel owner to allow the publication of the data.

AR comment: No deviations to report.

Aquaculture

Survey specifications
<p><i>Sector name refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.</i></p> <p><i>Sampling scheme refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling then outline sampling design.</i></p> <p><i>Variables refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex. Supra region refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All Supra regions'.</i></p>
Sector name(s): Aquaculture
Sampling scheme: Census
Variables: All variables social and economics on table 9 and 10
Supra region(s): Baltic Sea; North Sea; Eastern Arctic; NAFO; extended North Western waters (ICES areas 5, 6 and 7) and extended South Western waters (ICES areas 10, 12 and 14)
Survey planning
All enterprises licenced on reference year
AR comment: No deviations to report
Survey design and strategy
<p>As much as the aquaculture sector is concerned, Portuguese Fisheries Administration acts as the national authority for the production of statistical data. Ever since, all work undertaken within the aquaculture sector is related to the production of data under the European Statistical System.</p> <p>Following the publication of the Regulation (EC) no. 762/2008, DGRM developed a statistical operation, together with the National Institute for Statistics, performed annually. The sample unit is the enterprise and the population comprehends all those establishments that, in the reference year, had legal conditions to undertake any aquaculture activity.</p> <p>The survey that supports the Aquaculture programme focus on production for all the aquaculture establishments and collected economic and social data for all the enterprises regardless of being the first or second activity.</p> <p>The online surveys are available on https://bmar.pt to all enterprises.</p>

AR comment: No deviations to report
Estimation design
<p>Estimation process for primary variables is supported by estimators of total for census.</p> <p>To deal with non-responses, a problem mainly concerned with micro enterprises units for production of shellfish farming (clams), the developed methodology is based on the application of raising factors. Each year, based on the collected answers, the average yield (Y) of production, tonnes per hectare, is estimated. For all non-respondents units, based on their farming area, and applying the annual yield, the total clam production for the reference year is estimated. For non-responses on other variables in imputation of the segment average value is made.</p> <p>Employment variables, such as FTE will be estimated in accordance with Guidance Document for the Aquaculture (last update PGECON 2020).</p>
AR comment: No deviations to report
Error checks
<p>The data collected are subject to a series of validation procedures and values by segment are plotted to identify extreme values. For some extreme values, corrections on the dimensions are made (kilos to tonnes and kilos to grams), for other extreme values a direct contact with the enterprise in order to confirm them.</p>
AR comment: No deviations to report
Data storage and documentation
<p>Data input are stored into tables on database of electronic platform of BMar one-stop-shop.</p>
AR comment: No deviations to report
Revision
<p>The revision is made annually and when is mandatory</p>
AR comment: No deviations to report
Confidentiality
<p>Portuguese Fisheries Administration acts as the national authority for the production of statistical data and all internal procedures are governed by the same principles as the statistical authorities regarding data confidentiality, as provided for in the Regulation of European Statistics and in the National Statistical System (https://www.dgrm.mm.gov.pt/web/guest/activity).</p>

AR comment: No deviations to report