

Sampling plan description for biological data

Azores At Sea ICES

MS: PRT
Region: Southern Western waters (waters around Azores) - ICES X
Sampling scheme identifier: Hand lines for finfish at Sea, Longlines for deep-water species at sea; Cephalopods at sea; Small Pelagic at Sea; Set gillnets at Sea; Pots and Traps at Sea
Sampling scheme type: At Sea
Time period of validity: 2021-2024
<p>Short description:</p> <p>Sampling schemes 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 LHP_FIF 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) Sampling frame identifier: AZS4 - LHP_FIF Population not sampled: Other handliners targeting finfish operating from minor ports Sampling frame identifier: AZ5 - LHP_FIF_out of frame</p> <p>-Metier LHP_CEP 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 -</p>

Madalena)

Sampling frame identifier: AZS16 - LHP_CEP

Population not sampled: Other handliners targeting cephalopods operating from minor ports

Sampling frame identifier: AZ17 - LHP_CEP_out of frame

-Metier PS_SPF

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)

Sampling frame identifier: AZS20 - PS_SPF

Population not sampled: Other purse seiners targeting small pelagic fish operating from minor ports

Sampling frame identifier: AZ21 - PS_SPF_out of frame

-Metier FPO

Population sampled: List of active vessels using pots and traps

Sampling frame identifier: AZS28 - FPO

-Metier LLS_DWS

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)

Sampling frame identifier: AZS47 - LLS_DWS_<12m and AZS49 - LLS_DWS_>12m

Population not sampled: Other set longliners targeting deep-water species and other demersal operating from minor ports

Sampling frame identifier: AZ50 - LLS_DWS_out of frame

-Metier GNS_FIF

Population sampled: List of active set gillnetters targeting finfish species

Sampling frame identifier: AZS23 - GNS_FIF

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.

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.

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.

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.

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.

Sample storage

Storage description: Age structures are mostly kept in *eppendorfs*, 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 \(ices.dk\)](#).

Data processing

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.

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.

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.

