

Sampling plan description for biological data

Azores At market ICES

MS: PRT
Region: Southern Western waters (waters around Azores) - ICES X
Sampling scheme names: Cephalopods at Market; Hand lines for finfish at Market; Longlines for deep-water species at Market; Pots and traps at Market; Set gillnets at Market; Small pelagic at Market; Grappling Patellidae - at market
Sampling scheme type: At market
Time period of validity: 2021-2024
<p>Short description:</p> <p>Sampling schemes 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>
<p>Description of the population</p> <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 style="padding-left: 20px;">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 style="padding-left: 40px;">Stratum ID code: AZM1- LHP_FIF</p> <p style="padding-left: 20px;">Population not sampled: Minor ports with licensed vessels using handlines targeting finfish</p> <p style="padding-left: 40px;">Stratum ID code: AZ3 – LHP_FIF_out of frame</p> <p>-Metier LHP_CEP</p> <p style="padding-left: 20px;">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 style="padding-left: 40px;">Stratum ID code: AZM14 - LHP_CEP</p> <p style="padding-left: 20px;">Population not sampled: Minor ports with licensed vessels using handlines targeting cephalopods</p> <p style="padding-left: 40px;">Stratum ID code: AZ15 – LHP_CEP_out of frame</p>

-Metier PS_SPF

Population sampled: Main ports with licensed vessels using small purse seines targeting small pelagic fish (RPX - Rabo de Peixe; SMT - São Mateus; MAD - Madalena)

Stratum ID code: AZM18 - PS_SPF

Population not sampled: Minor ports with licensed vessels using small purse seines targeting small pelagic fish

Stratum ID code: AZ19 – PS_SPF_out of frame

-Metier FPO

Population sampled: Ports with licensed vessels using pots and traps

Stratum ID code: AZM27 - FPO

-Metier LLS_DWS

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)

Stratum ID code: AZM43 - LLS_DWS_<12m and AZM45 - LLS_DWS_>12m

Population not sampled: Minor ports with licensed vessels using set longlines targeting deep-water species and other demersal

Stratum ID code: AZ46 – LLS_DWS_out of frame

-Metier GNS_FIF

Population sampled: Ports with licensed vessels using set gillnets targeting finfish species

Stratum ID code: AZM22 - GNS_FIF

-Metier GRAPP

Population sampled: Ports with registered hand collectors targeting limpets

Stratum ID code: AZM51 - GRAPP

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 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.

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.

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 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.

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.

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 \(ices.dk\)](#).

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.

