

Sampling plan description for biological data

Mainland At market (Species Focus) - ICES

MS: PRT
Region: Southern Western waters (ICES zones VIII, IX) - IX
Sampling scheme names: Species focus - Size category: At market
Sampling scheme type: At market (Species focus size category)
Time period of validity: 2021-2024
Short description: Sampling schemes 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: PTM9 - SF_SC_HOM _ Main ports _ ICES 27.9.a Population not sampled: Minor mainland national ports of this species. Stratum ID code: PTM10 - 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).
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>

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.

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. *ICES Journal of Marine Science*, 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. *ICES Journal of Marine Science*, fsab151, <https://doi.org/10.1093/icesjms/fsab151>

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).

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.

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>