

Sampling scheme identifier: **Azores Biological parameters specific ICES**

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: Azores Biological parameters specific ICES
Sampling scheme type: Biological parameters specific
Observation type: SciObsOnShore
Time period of validity: 2025-2027
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. Primary Sampling Unit (PSU): 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 10 cm length class, depending on the species).
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 (≈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 10 cm 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.

Design follows 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).

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.

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Protocol follows 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).

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.

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.

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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:

<https://www.iccat.int/en/iccatmanual.html> - Data Base

Quality checks and data validation documentation:

<https://www.iccat.int/en/iccatmanual.html> - Data Base and Manual.

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:

<https://www.iccat.int/en/iccatmanual.html>

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.