Sampling plan description for biological data

Madeira At Sea ICCAT

MS: PRT

Region: Other regions - ICCAT

Sampling scheme identifier: Large Pelagic species at-sea

Sampling scheme type: At sea

Time period of validity: 2021-2024

Short description:

The objective of this sampling scheme 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).

Description of the population

Population targeted:

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.

Population sampled:

Population sampled: All vessels.

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:

a. Stratum ID code LPF2_ M3, n=34 trips

Furthermore, a pluriannual observer programme (2022-2024) will be implemented by contracting an outsourced service to implement it aboard Madeiran fishing vessels.

Stratification: Sampling scheme stratification includes vessel length class and métier. Overall, stratification is implemented to improve sampling coverage throughout the year.

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);
a. outcome for the retained fraction of the catch that might not be landed;
b. interactions with vulnerable fauna (e.g. sea-birds, sea-turtles and marine mammals) are also recorded.
c. 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.

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://www.iccat.int/en/iccatmanual.html

Compliance with international recommendations: Y

Link to sampling protocol documentation: https://www.iccat.int/en/iccatmanual.html

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.

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.

Data capture documentation: https://iccat.int/en/accesingdb.html

Quality checks documentation:

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).

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.

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.

Sample storage

Storage description: NA

Sample analysis: NA

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.