

Sampling scheme identifier: **AZ_OFF_EM_LicenseSyst_ICES**

MS: PRT
Region: North-East Atlantic
Sampling scheme identifier: AZ_OFF_EM_LicenseSyst_ICES
Sampling scheme type: Recreational (off site surveys)
Observation type: EMOnShore
Time period of validity: 2025-2027
Short description (max 100 words): AZ_OFF_EM_LicenseSyst_ICES aiming to collect catch data (and effort) from licensed recreational fishing modes (spearfishing and recreational boat fishing) for elasmobranchs species as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population
Population targeted: The target population is recreational fishing boats and spearfishing. The off-site methodology presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. Population sampled: The licensed recreational fishing boat owners and spearfishers are the population aim to sample. Shore angling and hand collecting were not covered since do not catch the target species, thus are outside the scope of the survey. Stratification: For the AZ_OFF_EM_LicenseSyst_ICES, the frame population (license holders) was stratified into subpopulations strata (fishing mode, island, year).
Sampling design and protocols
Sampling design description: In Azores the recreational fishing multispecies survey will focus on the catch estimation for the elasmobranchs species performed by two recreational fishing modes (boat fishing and spearfishing). The AZ_OFF_EM_LicenseSyst_ICES survey is embedded in the recreational fishing license system. AZ_OFF_EM_LicenseSyst_ICES presents a direct frame with direct access to the individual elements of the target population. Each sampling unit within the frame corresponds to each respective license holder. This 12-month recall survey will take place at the time the recreational boat angler or spearfisher is applying for a recreational fishing license in an informatics platform that allows the data collection on fishing effort, mean catch per trip and main captured species. In addition, it was considered potential elements of the target population that could be excluded from the frame, and a nested survey (within AZ_OFF_EM_LicenseSyst_ICES) was implemented to assess the reasons behind refusals and to access non-response cases. The nested survey explicitly aimed at collecting data on tourist fishers (within AZ_OFF_EM_LicenseSyst_ICES) and the first license cases and re-evaluation of refusals. Is the sampling design compliant with the 4S principle?: NA.

Regional coordination:

N.

Link to sampling design documentation:

https://www.dgrm.mm.gov.pt/documents/20143/124668/17_Azores_ICES_RecreationalSamp.pdf/7863f6bf-23ee-e6de-0425-d68403671742

Design follows international recommendations:

Y.

Link to sampling protocol documentation:

https://www.dgrm.mm.gov.pt/documents/20143/124668/17_Azores_ICES_RecreationalSamp.pdf/7863f6bf-23ee-e6de-0425-d68403671742

<https://pescador.azores.gov.pt/>

<https://pescaludica.azores.gov.pt/licencas.aspx> (Access to the license system where is allocated the protocol documentation in Portuguese language, and a print screen is available in Figure 1).

Protocol follows international recommendations:

Y.

Sampling implementation**Recording of refusal rate:**

Y.

Monitoring of sampling progress within the sampling year:

Follow-up mechanisms with license issue entities by e-mail and phone are establish. The daily monitoring system drive to detection of unusual level of refusals, informatics problems (i.e., Survey at License System) which trigger processes to analyse and find resolution.

Data capture**Means of data capture:**

Dedicated software was design to collect data, particularly a Survey embedded in the informatics platform of license system – all the recreational fishers (spearfishers and boat fishing owners) that apply for a license need to fill a 12-month recall survey.

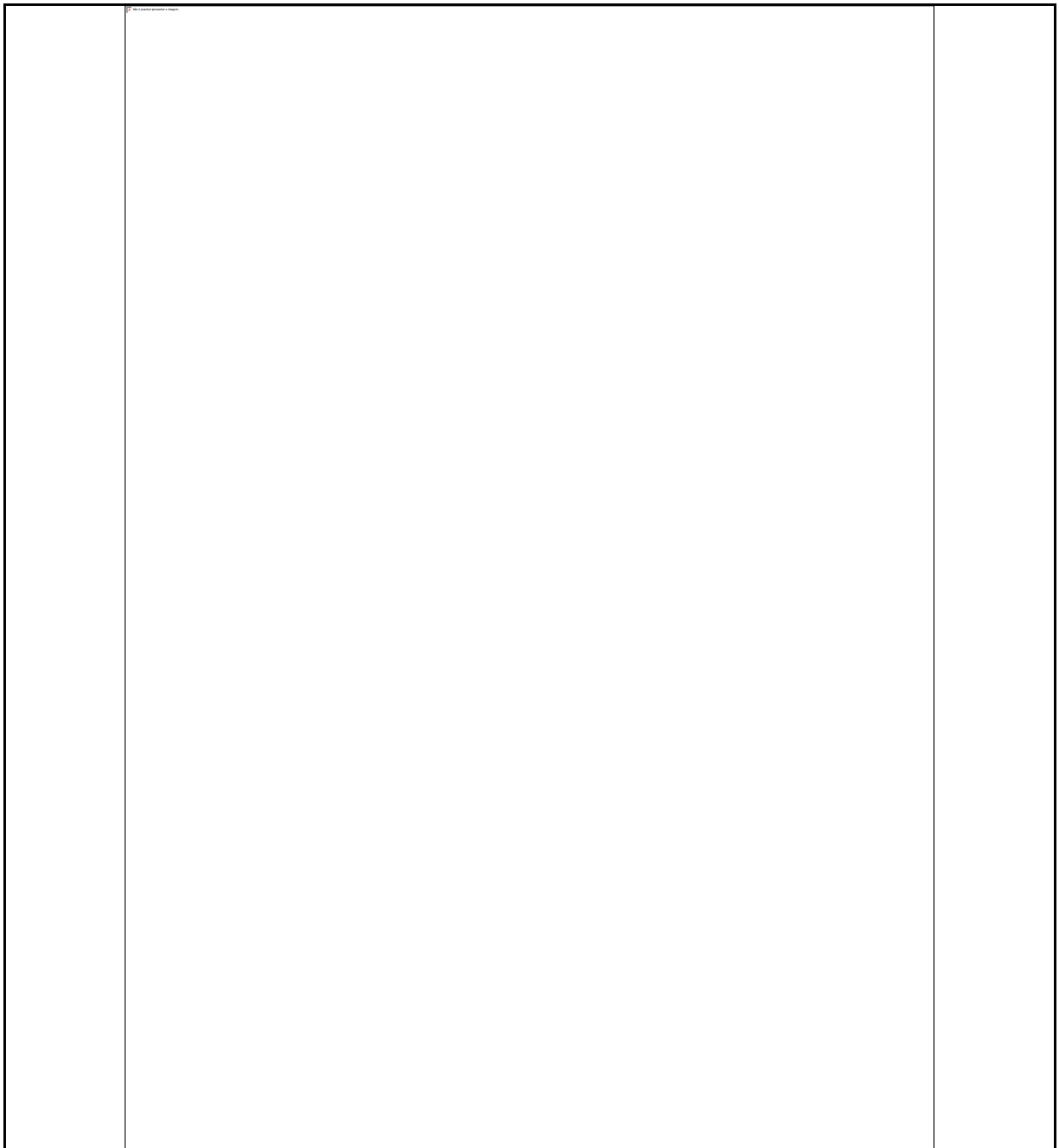


Figure 1. Survey embedded in the informatics platform of license system (in Portuguese language).

Data capture documentation:

https://www.dgrm.mm.gov.pt/documents/20143/124668/17_Azores_ICES_RecreationalSamp.pdf/7863f6bf-23ee-e6de-0425-d68403671742

<https://pescaludica.azores.gov.pt/licencas.aspx> (The survey is in Portuguese language, and a print screen is available in Figure 1).

Quality checks documentation:

N.

Quality checks procedures can be found in STECF report (pilot studies), however new and updated documentation will be available in 2025-2027.

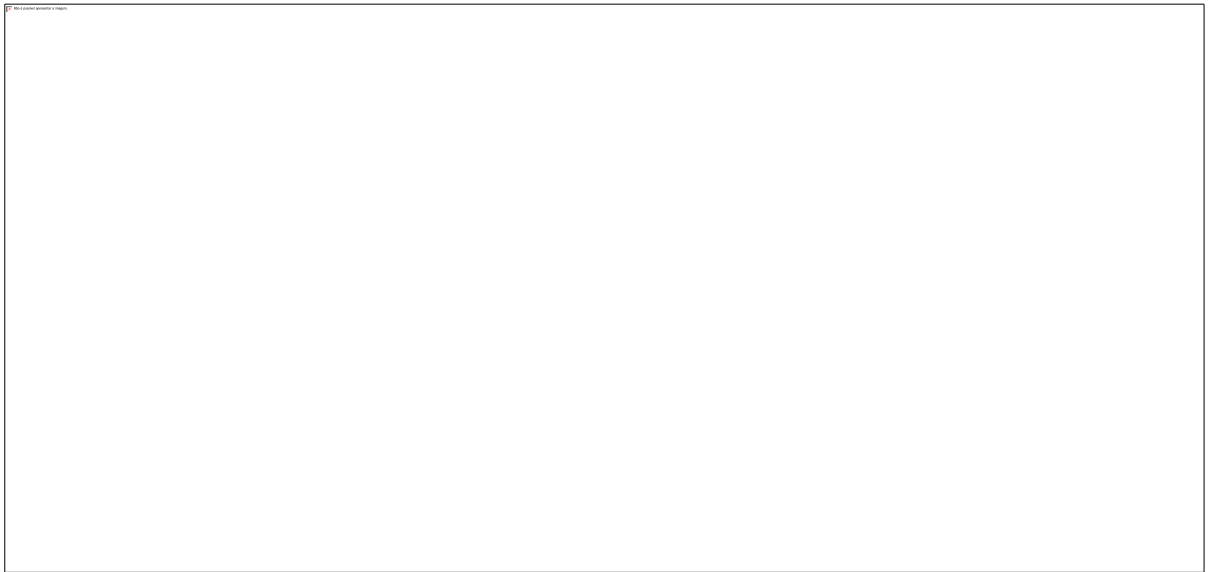
Data storage

National database: NA.
International database: NA.
Quality checks and data validation documentation: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. 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.
Sample storage
Storage description: NA.
Sample analysis: NA.
Data processing
Evaluation of data accuracy (bias and precision): A complemented off-site survey it was implemented in order to account typical bias, for example, recall bias within AZ_OFF_EM_LicenseSyst_ICES, and weighing, such as the use of AZ_OFF_EM_Recreational_ICES data to correct recall/avidity bias fishing effort estimation. The precision estimators will be presented in an internal report in 2025 - 2027.
Editing and imputation methods: N. Editing and imputations methods are still being studied to be used in the future and will be available in an internal report in 2025-2027.
Quality document associated to a dataset: Documentation will be developed in 2025-2027.
Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. 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.

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Observation type: EMOnShore

Time period of validity: 2025-2027
Short description (max 100 words): AZ_OFF_EM_Recreational_ICES aiming to collect catch data from recreational fishing (spearfishing and recreational boat fishing) for elasmobranchs species as indicated in Table 4 of the EU MAP Delegated Decision annex.
Description of the population
Population targeted: The target population are recreational fishing boats, spearfishing.
Population sampled: The licensed recreational fishing boat owners and spearfishers. Shore angling and hand collecting were not covered since do not catch the target species, thus are outside the scope of the survey.
Stratification: For the AZ_OFF_EM_LicenseSyst_ICES, the frame population (license holders) was stratified into subpopulations strata (fishing mode, island, year). A subsampled (from license holders) is pull off and engage in the AZ_OFF_EM_Recreational survey_ICES.
Sampling design and protocols
Sampling design description: In the Azores, the recreational fishing multispecies survey will focus on the catch estimation for the elasmobranch's species performed by two recreational fishing modes (boat fishing and spearfishing). The methodology will be based on an off-site survey. The AZ_OFF_EM_Recreational_ICES survey aims to get a subsample from license holders. To recruit a panel for the logbook is used has the main engagement method the invitation of the recreational fishers within the survey of the license system platform (AZ_OFF_EM_LicenseSyst_ICES). It consists of a new user-friendly "Pescador" system (IOS/Android App and web-based) that allows collecting data on fishing effort, catch, releases and economic expenditures. Even though, the new "Pescador" system will be target of continuous development during 2025 - 2027, integrating new functionalities and tools (e.g., catch photos upload, complete trips validation tool). The old system e-form SRAF will work temporarily until all users start using the new Pescador system. The panel target of a quarter basis follow-up phone and e-mail contacts, to validate the complete 12-month fishing effort and catch information. Fishers without informatic competence will enter in the panel but surveyed by phone at a monthly basis.
Is the sampling design compliant with the 4S principle?: NA.
Regional coordination: N.
Link to sampling design documentation: https://www.dgrm.mm.gov.pt/documents/20143/124668/17_Azores_ICES_RecreationalSamp.df/7863f6bf-23ee-e6de-0425-d68403671742
Design follows international recommendations: Y.
Link to sampling protocol documentation: https://www.dgrm.mm.gov.pt/documents/20143/124668/17_Azores_ICES_RecreationalSamp.pdf/7863f6bf-23ee-e6de-0425-d68403671742 https://pescador.azores.gov.pt/

Protocol follows international recommendations: Y.
Sampling implementation
Recording of refusal rate: Y. Monitoring of sampling progress within the sampling year: Follow-up mechanisms by e-mail and phone are establish monthly basis in AZ_OFF_EM_Recreational_ICES (including to record cases of drop-ins and drop-outs). The monitorization of data entering is made at daily basis. The monitoring system drive to detection of unusual level of refusals, informatics problems which trigger processes to analyse and find resolution.
Data capture Means of data capture: Dedicated software (IOS/Android App and web-based) Pescador system was developed to collect data for recreational fishing (spearfishing and boat fishing). Even though, the new system “Pescador” will need continuous development and improvement during 2024, integrating new functionalities and tools (e.g., catch photos upload, complete trips validation tool). For AZ_OFF_EM_Recreational_ICES survey the panel is mainly recruited within the license system survey. The old system e-form SRAF is still operational, since some users still use it, but will be disabled during 2025 - 2027. The panel target of a quarter basis follow-up phone and e-mail contacts in order to validate the complete 12-month fishing effort and catch information.  Figure 1. Web and APP Pescador system catch and effort data collection for recreational fishing (spearfishing and recreational boat fishing) (in Portuguese, Spanish and English language). Data capture documentation: https://www.dgrm.mm.gov.pt/documents/20143/124668/17_Azores_ICES_RecreationalSamp.pdf/7863f6bf-23ee-e6de-0425-d68403671742 https://pescas.azores.gov.pt/pescaludica/ (The survey is in Portuguese, Spanish and English language and a print screen is available in Figure 1). Documentation of the new Pescador system (in Portuguese language): https://drive.google.com/file/d/1eAU1VS1UJoraplvK-NL4PO3pRPY1sWo_/view?usp=drive_link Quality checks documentation:

N. Quality checks procedures can be found in STECF report (pilot studies), however new and updated documentation will be available in 2025-2027.
Data storage
National database: NA. International database: NA. Quality checks and data validation documentation: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. 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.
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Storage description: NA. Sample analysis: NA.
Data processing
Evaluation of data accuracy (bias and precision): Y. A complemented off-site survey it was implemented in order to account typical bias, for example, recall bias within AZ_OFF_EM_LicenseSyst_ICES, and weighing, such as the use of AZ_OFF_EM_Recreational_ICES data to correct recall/avidity bias fishing effort estimation. The precision estimators are based on Van der Hammen et al., (2016) and will be presented in an internal report in 2025 - 2027. van der Hammen, T., de Graaf, M., & Lyle, J. M. (2016). Estimating catches of marine and freshwater recreational fisheries in the Netherlands using an online panel survey. <i>ICES Journal of Marine Science</i> , 73(2), 441-450. Editing and imputation methods: N. Editing and imputations methods are still being studied to be used in the future and will be available in an internal report in 2025-2027. Quality document associated to a dataset: Documentation will be developed in 2025-2027. Validation of the final dataset: Recreational Fishing database will be transferred from Excel files into a database to be constructed during the sampling period covered. This is expected to contain internal routines for both basic errors detection (e.g., errors in dates, species codes) as well as implementation of checking of errors. 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.