INISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

NATIONAL AGENCY FOR FISHERIES AND AQUACULTURE

Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017

on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008 (recast)

Commission Delegated Decision (EU) 2021/1167 of 27 April 2021

establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors from 2022

Commission Implementing Decision (EU) 2021/1168 of 27 April 2021

establishing the list of mandatory research surveys at sea and thresholds as part of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors from 2022

Commission Implementing Decision (EU) 2022/39 of 12 January 2022

laying down rules on the format and timetables for the submission of national work plans and annual reports for data collection in the fisheries and aquaculture sectors, and repealing Implementing Decisions (EU) 2016/1701 and (EU) 2018/1283

[ROU] Annual Report on data collection in the fisheries and aquaculture sectors

2022

Version [1] – [2023]

Bucharest, 31 may 2023

NATIONAL DATA COLLECTION ORGANIZATION

The Data Collection Programme is co-ordinated by the National Agency for Fisheries and Aquaculture, Ministry of Agriculture and Rural Development, national correspondent Alexandru **GHEORGHE**, with following contact details are:

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SECTION 1 : GENERAL INFORMATION

Data collection framework at national level

General comment: Use this text box to describe how data collection is organised in your Member State (institutions involved, contact information) and in which regional coordination groups (RCG) your Member State participates.

The National Data Collection Program (NDCP), for the period 2022-2024, will present the data from the fisheries sector and the trends regarding the development of this sector in Romania, in accordance with the provisions of the applicable EU regulations and decisions, Commission Delegates Decision (EU) 2021/1167 of 27 April 2021 establishing the multiannual Union program for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors from 2022, (EU) 2021/1168 Commission Delegates Decision (EU) 2021/1168 of 27 April 2021 establishing the list of mandatory research surveys at sea and thresholds as part of the multiannual Union program for the collection and management of data in the fisheries and aquaculture sectors from 2022 and Regulations Regulation (EU) 2017/1004 Of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisher is sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008.
The main objective of the program is to present the situation in the fishing sector and the trends in the development of this sector in Romania. The results of the program will contribute to the implementation of strategic objectives for the development of sectoral policies in accordance with Romania's National Strategy in the Fisheries Sector and the implementation of the new EU Common Fisheries Policy.

In accordance with the provisions of Council Regulation (EC) 199/2008 of 25.02.2008, the public institution of national interest designated to implement the National Fisheries Data Collection Program, is the National Agency for Fisheries and Aquaculture (NAFA) - Mr. Alexandru GHEORGHE being appointed National Correspondent: 29, Sf. Vineri Street, sector 3, Bucharest, Romania; tel: (40) 0374 466140, (40) 0374 466139; fax: (40) 0374 466138; e-mail: secretariat@anpa.ro; office@anpa.ro**;** alexandru.gheorghe@anpa.ro.

On the realization and implementation of the National Program, are involved the ***National Institute for Marine Research and Development "Grigore Antipa"*** Constanța (NIMRD) and its partners: ***Research and Development Institute for Aquatic Ecology, Fisheries and Aquaculture Galati*** (ICDEAPA) and ***Research and Fisheries Development Station Nucet*** (SCDP).

National Institute for Marine Research and Development *"Grigore Antipa"* (NIMRD) - Blvd. Mamaia no. 300, RO-900581, Constanţa 3, Romania; Phone**:**+40 241 543288; +40 241 540870; Fax: +40 241 831274; E-mail: office@alpha.rmri.ro; Web site: http://www.rmri.ro

The National Institute for Marine Research-Development "*Grigore Antipa*" Constanţa is an institution with specific responsibilities and experience in developing studies (national and international) in the field of Marine Living Resources in the Black Sea, as well as in reporting data to regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM, FAO, MEDIAS, MEDITS, ICES), in accordance with Romania's obligations under the Convention on the Protection of the Black Sea against Pollution and the environmental legislation of the European Union (Del. 2000/60 / EEC; Del. 2008/56 / EEC). The process of inventorying fish species of commercial and conservative importance in the Black Sea requires the existence of historical data accumulated from previous programs and projects, carried out in Romanian transitional, coastal and marine waters. In this regard, the concerns of the NIMRD Constanța, regarding the monitoring of living marine resources have a continuity of over 51 years.
NIMRD, has qualified staff and the necessary equipment to carry out the proposed topics in good condition. The specialists who are going to carry out the study have knowledge and practical experience in the specific fields: knowledge of the evolution of ichthyofauna diversity; knowledge of the biology, ecology and ethology of the main marine fish species of commercial importance; assessment of the state and evolution trends of pelagic and demersal fish resources; development of high-performance equipment for commercial and research fishing; fisheries statistics research and fisheries management; the ecosystem approach to the management of the Romanian marine fishery; scientific support for the implementation of national legislation in the field of fisheries and the protection of marine species and habitats, in accordance with European legislation.
Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal

Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field of marine research, having an activity of over 50 years in this field, especially in the Black Sea waters. NIMRD developed and implemented the PNCD program in the period 2008 - 2021. NIMRD will ensure the management and coordination of the implementation of the entire NDCP program. At the same time, it will implement all the objectives related to the fishing activity.

Research and Development Institute for Aquatic Ecology, Fisheries and Aquaculture Galati (RDIAEFA) - Portului Street, no. 54, cod 800211, Galați, Romania; Tel.: (40)0236-416914, Fax: (40)0236-414270; E-mail: icdeapa.galati@asas.ro**;** http://www.icdeapa.ro

The Research and Development Institute for Aquatic Ecology, Fisheries and Aquaculture is a public institution subordinated to the Academy of Agricultural and Forestry Sciences. It has a tradition of over 30 years in research in the field of assessment of living aquatic resources, fisheries and aquaculture and is a national science center whose structure operates nine doctors of science, two of whom also have the quality of university professors. The experience of the research staff of the institution has contributed to the development of knowledge in the field of living aquatic resources, fishing, aquaculture and processing by: developing systems for assessing and monitoring the state of the biomedical environment and aquatic biodiversity; promoting innovative techniques for ecological rehabilitation and biodiversity consolidation; conservation of wild fish populations in natural river basins and especially sturgeons; creation of the data bank regarding the sturgeon populations from the Danube river; elaboration of techniques, methods, selective fishing gear and their implementation in the exploitation of aquatic bioresources; design, implementation and implementation of technological systems and technologies for the reproduction of various aquatic species; design and implementation of technological systems and technologies for intensive breeding of valuable fish species and other aquatic organisms; design and implementation of technologies for complex capitalization of aquatic bioresources through interspecific polyculture; selection, conservation and improvement of genetic resources in inland waters and aquaculture; elaboration of methods of diagnosis, prophylaxis and treatment in fish diseases; development of organic aquaculture; elaboration of technical expertise systems in the field of quality and safety of aquaculture and fishing products; elaboration of technologies in order to make new varieties of semi-preserves in oil and spicy sauce and establishment of new technologies for salting fish. RDIAEFA Galati will collect data from aquaculture and fish processing sector.

Fisheries Research and Development Station Nucet (**FRDS**) - Principală Street no. 549, Nucet, jud. Dâmbovița, Romania; tel/fax: 0245-267003, tel.0245-267009, E-mail: SCDP.Nucet@asas.ro

Nucet Fisheries Research and Development Station is a public institution subordinated to the Academy of Agricultural and Forestry Sciences, was established in 1941. In its over 70 years, the institution has made an essential contribution to the development of the national fisheries sector, promoting fundamental research and application in the field of fish farming / aquaculture. The main results obtained were the development of breeding and rearing technologies for most freshwater fish species, genetic improvement of carp - the creation of breeds, lines and hybrids of fish with superior productive characteristics, the introduction and acclimatization of new species in aquaculture in Romania, the establishment of the freshwater fish genetic. The research station has qualified staff and the necessary equipment to carry out the proposed topics in good condition. The specialists who are going to carry out the study have knowledge and practical experience in the specific fields: aquaculture, processing, knowledge of the biology, ecology and ethology of the main fish species of commercial importance; assessment of the state and evolution trends of fish resources in inland freshwater; the ecosystem approach of the management of the Romanian continental fishery; scientific support for the implementation of national legislation in the field of fisheries and the protection of freshwater species and habitats, in accordance with European legislation. FRDS Nucet, will collect data from aquaculture and fish processing sector.

Link to the Romanian data collection website.

The data are stored in a database server of NIMRD Constanta; the loading of data on the server is done through dedicated applications, installed on the computers of NIMRD staff, trained to use these applications. For data security reasons, accessing them is done only internally, through SQL commands. No web interface was provided / installed on the database server.

Text Box 1a: Test studies description

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

Test study 1: The level of fishing and the impact of beam trawl fishing on by-catches of vulnerable species

Given that in net fishing, selective gears are used, and by-catches are very small, without having a major impact on the marine ecosystem and fish species as well of needs of economic agents with activities in the field of fisheries, Romania will continue to conduct the study on the assessment of by-catches from beam trawlers.

Duration of the test study

The test study will cover the period 2022-2024. Annually, the obtained data will be presented, on the way in which the Romanian by-catches of vulnerable species are affected by the beam trawling.

Methodology and expected outcomes

The methodology and techniques that were used for the collection, verification, processing and analysis of data and for the assessment of fish stocks are those generally accepted for the Black Sea basin and in accordance with international methodology.

The method used was that of area investigation using the beam trawl for the sampling procedure. The beam trawl is a towed filtering gear in terms of construction and consists of a beam (metal pipe) supported at its ends by two metal skids and the net (collection bag consisting of cap, base and side). The traverse and feet are the backbone frame that attaches the net, which in turn is fixed to the front of the foot on a frame of resistance (rope, cable or chain), which aims to engage and direct to the concentration zone of the bag the target species (*R. venosa*).

Beam trawl fishing gear

During operation, the bottom of the beam trawl (base feet) is tangent to the bottom of the sea, which allows harvesting of rapa welk fixed on the sandy or sandy-muddy substrate. In the case of use of such tools, other organisms which live on the bottom of the sea (such as mussels, crustaceans and gobies) may also be collected by accident, for objective reasons (poor operation of the tool due to strong currents, tides, variations in speed of trawling etc.).

Considering, however, that the meshwork is made of panels with 50 - 55 mm mesh size, to allow for the filtering of the immature specimens, with no commercial interest (specimens smaller than 5.5 cm / pursuant to Order no. 342/28.06.2008), the fishing tool can be considered selective in both retrieving mature specimens and filtering other small organisms (mussels, shrimps, gobies etc.) accidentally collected from the seabed.

Standard fishing equipment was used - beam trawl. The used beam trawls have maximum width of 5.3 m and maximum breadth of 6 m. The functional and technical parameters of the beam trawl are: vertical opening of the beam trawl - 280 mm; horizontal opening between the rails - 5 m; effective part of the upper frame - 4.8 m; trawl velocity - 3- 3.6 knt; trawling duration - 60 min.

***Collected information* / Parameters:** Geographic coordinates (start and end points); Water depth (m);

Duration of trawling activities; Mean trawling speed (knt); Total rapa whelk catch/trawl (kg); Structure on species; Species composition of discard; Absolute and standard length (cm) of target species; Individual weight (g) of target species; Determination of age (for turbot ≤ 45) and Sex and maturity (for turbot ≤ 45).

The report including data about the species composition of the bycatch in rapa whelk fisheries: spatial distribution of the target species, abundance and length - weight structure. The pilot study covers the following activities: sampling with beam trawl; determination of the qualitative and quantitative structure of the by-catch; determination of the absolute and standard length and individual weight of the turbot and piked dogfish, collected as by-catch and collection of data for gender and life stages.

The reports are based on data collected to assess the effect of beam trawling on both juvenile stages of turbot (*Scophthalmus maximus*) and dogfish (*Squalus acanthias*) and other vulnerable species.

Laboratory analyses: the age of the species was analysed in the laboratory. Otolith samples were analyses with the use of a binocular microscope. The average, minimum and maximum length of the individuals were measured and based on this data the percentage distributions of the size classes was calculated.

Statistical methods: the percent shares of the turbot discards from the rapa whelk catch were estimated and averaged in two different ways: *average by trawling day* and *average for all hauls.*

Monthly averages of length and weight of the turbot discards were estimated. General statistics of rapa whelk catches, turbot discards and length - weight data is presented.

XLSTAT software was used for presentation of histograms of length and weight structure of the turbot discard and rapa whelk catches. Statistics about the histograms classes is presented, including - lower and upper boundary of the classes, frequency, relative frequency, density.

At the end of the pilot study, the results will be presented in the form of tables and data maps for:

* the composition of by-catch species;

* biological data for species and monthly dynamics;

* spatial distribution of abundance indices (ind / trawl; kg / trawl);

* histograms of length and weight both for accidental species (turbot, shark, etc.) and for the target species rapa whelk;

* total catch of rapa whelk (kg / trawl)

* share of turbot catch (daily average and average per trawl).

As long as there is beam fishing, the assessment of the impact on the ecosystem and marine species will include monitoring and sampling of data and samples, and the study will have annual continuity.

By continuing the study, we will continuously evaluate the impact of the use of beam trawl on marine habitats and the elaboration of measures for the protection and conservation of the marine environment, as well as the improvement of the tool selectivity.

Brief description of the results (including deviations from the plan and justifications as to why if this was the case).

The main area of activity for rapana fishing is between Constanța and Sf. Gheorghe, between the isobaths of 15 - 26 m. Specialized rapana fishing gained significant importance starting with the second semester of 2013 by legalizing the use of beam-trawl through OM no. 1696/2013. Thus, it was a period in which the catch for this species increased significantly (Figure 2).

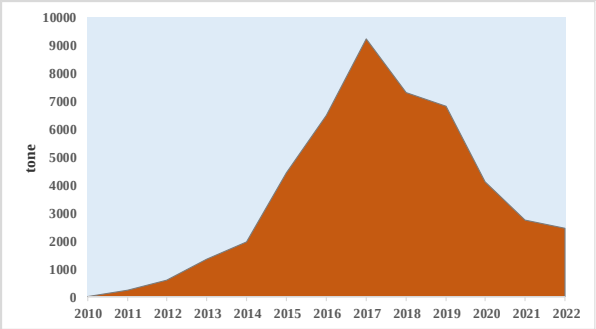


Figure 2 - Total catch of Rapana venosa on the Romanian coast of the Black Sea (2010 – 2022)

But, as can be seen above, the total annual rapana catch is continuously decreasing, most likely due to the overexploitation of the stock. In the summer expedition, a catch of 426 kg was obtained. Regarding the analysis of the abundance of this species, in the summer expedition, it was identified in larger quantities in the northern area of the Romanian coast (Figure 3).

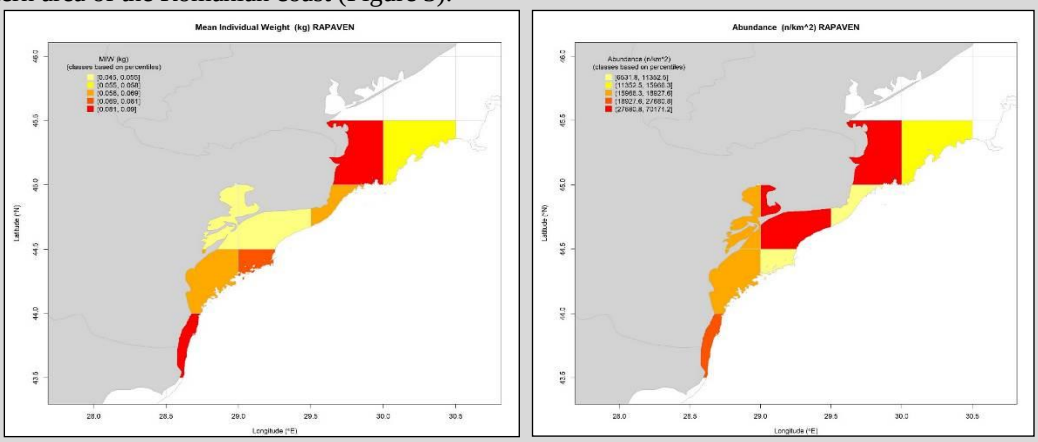


Figure 3 - Rapana abundance and average individual weight in July 2022

In the autumn expedition, a quantity of 214 kg was captured, and a higher abundance was observed in the southern part of the Romanian coast (Figure 5).

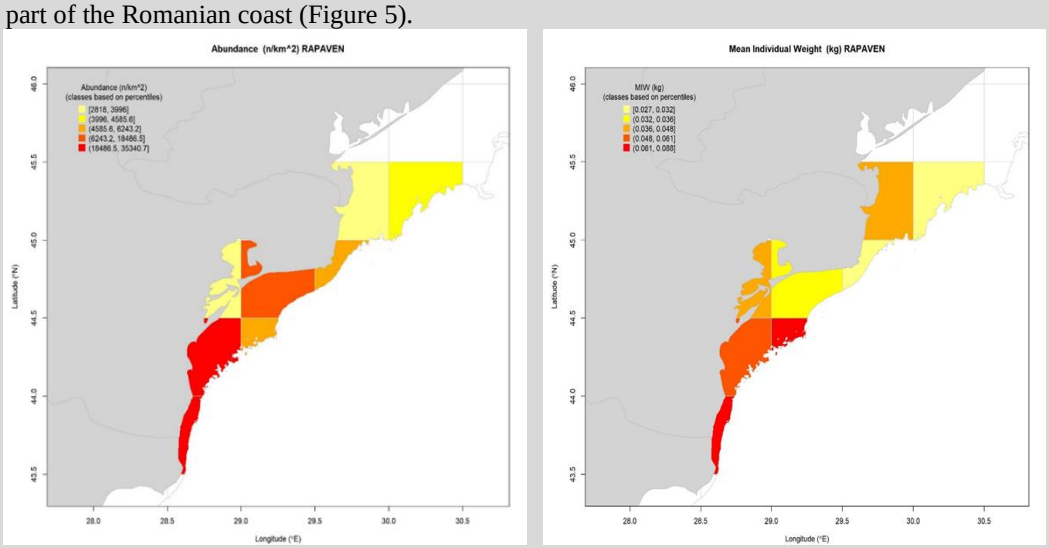


Figure 5 - Rapana abundance and average individual weight autumn, 2022

Within the specialized rapana fishing activities, a varied number of complementary species were identified (Table 1).

Table no. 1 - Complementary species identified in beam-trawl fishing for the target species Rapana venosa (2022**)**

	Summer		***Autumn***	
Species	***Number***	***Weight (kg)***	***Number***	***Weight (kg)***
		FISH		
Platichthys flesus	3	0.082	2	0.023
Pegusa lascaris	3	0.114	10	0.236
Neogobius melanostomus	10	0.246		
Gobius paganellus	139	1.097	3	0.007
Callionymus pusillus	29	0.038	3	0.007
Parablennius tentacularis	5	0.027	1	0.002
Merlangius merlangus euxinus	18	0.135		
Mesogobius batrachocephalus	4	0.229		
Scorpaena porcus	4	0.271		
Neogobius cephalarges	1	0.02	1	0.032
Gobius niger	79	0.7	1	0.008
Pomatoschistus marmoratus	2	0.035		
Parablennius zvonimiri	1	0.009		
Knipowitschia caucasica	2	0.0012	4	0.007
Scopthalmus maximus			3	0.083
Squalus acanthia			1	1.342
		MOLLUSCS		
Anadara inaequivalvis	-	72.495	52	1.423
Mytilus galloprovincialis	-	569.79		791.263
Chamelea gallina	-	57.546	6	0.062
Flexopecten glaber	260	5.837	56	1.462
Cerastoderma edule	-	22.607	1	0.009
Polititapes aureus	-	35.289	3	0.018
Mya arenaria	2	0.044		
Tellina tenuis	-	11.776		
Nassarius reticulates	12	0.023		
		CRUSTACEANS		
Liocarcinus navigator	187	0.737	113	0.398
Liocarcinus holsatus	114	0.451	293	2.067
Crangon crangon	37	0.043	8	0.025
Pachygrapsus marmoratus	1	0.009		
Xantho poressa	1	0.02	11	0,067
Upogebia pusilla	2	0.003	11	0,060
Diogenes pugilator	31	0.1		
Carcinus aestuarii	1	0.093	1	0.051
Brachynotus sexdentatus			4	0.011

In the summer season, more fish species were identified than in the autumn season, and regarding molluscs, more were identified in the autumn season than in the summer season (Figure 7).

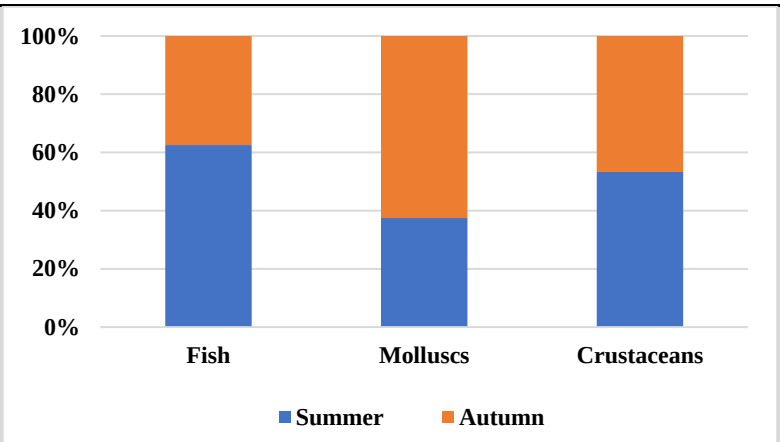


Figure 7- Percentage of complementary species in beam trawl fishing for Rapana venosa

Among the vulnerable species, only the shark (Squalus acanthias) was identified, a single specimen in the autumn season. Knowing that the tool acts on bottom species, special attention was paid to flat fish species. Only one species was identified: Scophtalmus maximus (turbot) 3 small specimens, in the autumn expedition. Regarding the area where the specimens were identified, two of them were taken from the Zăton area and one from the Eforie area (Figure 8).

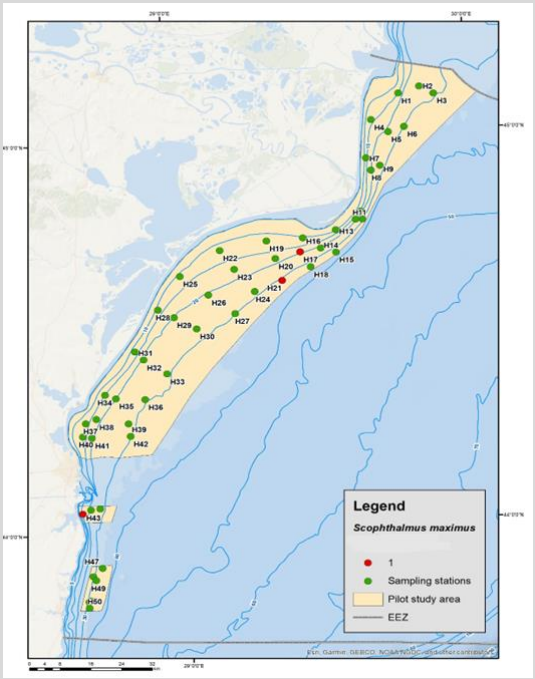


Figure 8- Representation on the map of the sampling points where turbot specimens were identified in beam-trawl

Conclusions

• in 2022, samples taken during two beam-trawl scientific expeditions for the target species Rapana venosa were analyzed.

• the total annual catch of rapana is continuously decreasing.

• regarding the abundance of this species, in the summer expedition, it was identified in larger quantities in the northern area of the Romanian coast, while in the autumn expedition a higher abundance was recorded in the southern area.

• regarding complementary species, 16 fish species were identified, of which 1 sensitive (Scophtalmus maximus) and 1 vulnerable (Squalus acanthias), several species of crustaceans and several molluscs were also identified.

• the percentage of complementary species compared to the total catch for the target species varied depending on the season.

General comment: This text box fulfils Chapter II, section 1.2 of the EU MAP Delegated Decision annex.

Test study 2: Environmental data on aquaculture

Aim of the test study

The aim of the study is to analyse the environmental data for aquaculture regarding the type and quantity of medicines or treatments administered for diseases prevention and control from Romanian aquaculture sector and, the mortalities registered in aquaculture units.

Duration of the test study

The test study will cover the period 2022-2024. Annually, Romania will transmit the obtained data during the analysed year. After three years in which environmental data were collected, the annual report for 2024 will include conclusions on environmental data for the aquaculture sector.

Methodology and expected outcomes

The Test study was elaborated based on quantitative and qualitative methods. The qualitative method involves the interviews conducted in order to establish the form of questionnaire. The quantitative method is represented by sample determination, distribution and collection of the questionnaires. The last phase of the pilot study consists of the analysis and interpretation of collected data, testing the efficacy of research instruments and protocols and estimation of statistical parameters for later analysis. The main participants in the research are the aquaculture units, the Research and Development Institute for Aquatic Ecology, Fisheries and Aquaculture Galati (IRDAEFA), the Research and Development Station for Fisheries Nucet (RDSFC Nucet), the National Agency for Fisheries and Aquaculture (NAFA) and the National Sanitary Veterinary and Food Safety Authority (NSVFSA). The test study AED includes mainly data regarding administrated substances and treatments in Romanian aquaculture units and is performed as it follows:

a) Elaboration of the questionnaire structure, is to include mainly the data as adopted in multi-annual Union programme 2020-2021, treatments, medicines in relation with possible mortalities in some farms, and data on following a work group session with NAFA agents, in cooperation with researchers from IRDAEFA Galati and RDSFC Nucet.
b) Sample size and the number of aquaculture units taken into study, was established by considering specific criteria such as sector segmentation and development regions.
c) Data collection is conducted according to the general data protection regulation (EU 2016/679) and by content writing the questionnaire, accompanied with punctual interviews, with the purpose of obtaining coherent and comparable information, regarding the environmental variables that are to be collected subsequent to the test study.

The analysis of the collected samples would reveal the evolution of production on carp (cyprinids) farms such as: medicines, other treatments, even fertilizers (in some ponds – for natural food); in case of trout farms, the administrated substances, with curative purposes. A special aspect is to be analysed for trout farms high storage densities of fish biomass, which generates a high risk of disease among the fish population. The estimation of mortality, the diseases where is the case.

Brief description of the results (including deviations from the plan and justifications as to why if this was the case).

The analysis of the collected samples revealed that:

In the section "Preventive treatments applied to the prevention of fish diseases", the data collected showed that the preventive treatments applied differ according to the specifics of the breeding unit, so that: in cyprinid breeding units, the substances applied for prophylactic purposes are mainly represented by: lime, sodium chloride (salt), lime chloride, oxytetracycline and potassium permanganate (KMnO4); in the case of salmonic units, the treatments were: sodium chloride (salt), formaldehyde, methyl blue, potassium permanganate, peracetic acid, chloramine T, biosol, peridox, bisulfim and antibiotics such as oxytetracycline, floron and flumechin. Thus, it can be appreciated that, in cyprinid breeding units, the application of treatments and substances is carried out for prophylactic purposes, due to the low chances of disease among the fish population. This is often due to the low storage densities of animal biomass and the high volume of water. In the case of nursery salmon units, the administered substances were applied for curative purposes.

In the section "Disinfection treatments and actions for the prevention of diseases carried out in pools / growing enclosures / facilities" the data collected showed that: - in concrete basins, specific to salmon

farming units, the treatments applied consist in the administration of substances such as: Chloramine T, quicklime, Lime chloride, Peracetic acid, Peral S, Formaldehyde, Copper sulphate, floron and Chloride sodium (salt); - in soil basins, specific in most cases to cyprinid breeding units, disinfection treatments for disease prevention consisted of the application of substances such as: lime chloride, quicklime, copper sulphate.
In the section "Amendments and management fertilizers" it can be said that, for this chapter, data were completed from the breeding units of cyprinids, where the breeding of fish is done in land basins. As amendment and administered fertilizer are used: manure, lime and ammonium nitrate.
Section "Treatment for diseases manifested in the fish farm". Data from salmonid breeding units have been completed for this section. The drugs administered were: copper sulphate, sodium chloride (salt), peracetic acid, oxytetracycline, florfenicol, floredan, enroden, chloramine T.

Text Box 1b: Other data collection activities

General comment: Use this text box to provide information on other data collection activities that relate to your EMFAF operational programme and need to be included in the work plan and the annual report. Describe activities that are funded by the DCF but fulfil objectives under other EMFAF priorities, like marine knowledge, or activities funded by the DCF, but without a direct link to the EU MAP specific requirements or WP template tables, like freshwater fisheries. You can also include one-off specific studies for a particular end-user need that do not enter the regular data collection.

1. Aim of the data collection activity

Follow-up for the Project SecWeb (Mare 2020-08) to have a long-term supportive structure for RCGs on administrative side. Functioning secretariat that gives administrative support for RCG and ISSG chairs and manage the RCG web page (https://www.fisheries-rcg.eu/).
Support the operation and functioning of the RCG´s Secretariat for a fluent regional coordination of data collection activities.

2. Duration of the data collection activity

Starting from 2023.

3. Methodology and expected outcomes of the data collection activity

The Secretariat´s organizational structured has been set up and pilot tested throughout SecWeb project. The key functions of the RCG´s Secretariat have been determined in close collaboration with all RCGs, in particular with RCG and Intersessional Subgroups (ISSGs) chairs. A business model has been developed. In addition, good practices in communication within and among the RCGs have been promoted and installed. The overall capacity to reach out to a wider public and increase the visibility of the work and output of the RCGs has been boosted with the development of a dedicated website and the consolidation of a visual identity.
RCG chairs and the RCG´s network in general have acknowledged the added value of having an RCG´s Secretariat to the overall aim of improving data collection activities.
Based on SecWeb project outputs the proposed data collection activity will connect the whole RCG network and stakeholders to work together on common goals. The Secretariat provides fluent administrative and coordination support for more efficient regional coordination liberating national experts involved in data collection activities from heavy burden administrative tasks.
Overall expected outcomes:

- A full-time dedicated Secretariat support service for the RCGs enables a consistent approach to administering RCG activities, facilitates communication, and enhances the intersessional work, supporting also the work of sub-groups.
- A dynamic and permanently updated website will be kept available including as features:

o Integration – allowing seamless synchronization with third-party information needs and requests.

o Responsive display – to serve content across multiple devices, screens, and browsers.

o User experience- maintaining a satisfactory user experience throughout the website sections.

o Accessibility – To any interested visitor in a user-friendly way across the website sections. o Retention- keeping visitors coming back to the website. o Links to relevant restricted access sites and virtual environments. - The Visual identity for the RCGs is increasingly consolidated and visibility and understanding of the work by the RCGs is enhanced for the relevant stakeholder groups. - A regularly updated Stakeholders' database improves the communication function among the RCGs' experts and the stakeholders' community. - Internal communication protocols and help-desk in place makes it easier for any new comer to efficiently join, adopt responsibilities, and contribute to the RCGs objectives and work commitments. - The public description of the secretariat functions, operational working protocols and commitments will build trust and enhance the whole network transparency and accountability.
During 2022 the activities of the RCGs Secretariat still developed in the context of the SecWeb Project, which was extended to last until the end of February 2023. The RCG experts and the Member States' NCs engaged in several discussions about the long-term stabilization of the Secretariat services, given the value added by the project to the RCGs networks, and agreed on a short-term solution for continuity in 2023 which was incorporated with a statement in "Text Box 1b: Other data collection activities" of the Annual Work Plans of the Member States. The longer-term perspective will build upon the outcomes from SECWEB and dealt with inter-sessionally and pan regionally by ISSG NCs in 2023 and beyond.

SECTION 2: BIOLOGICAL DATA

Text Box 2.1: List of required species/stocks

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.1.
Deviations from the work plan *No deviations.* Actions to avoid deviations *Not applicable.*

Text Box 2.2: Planning of sampling for biological variables

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(a) of the EU MAP Delegated Decision annex. This text box applies to the annual report and complements Table 2.2.
Deviations from the work plan *No deviations.* Actions to avoid deviations. *Not applicable.*

Text Box 2.3: Diadromous species data collection in freshwater

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.1(b) and point 2.3 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used to collect data from freshwater and inland commercial and recreational fisheries for salmon, sea trout and eel. Also include overview of data to be collected from research surveys on salmon, sea trout and eel in freshwater, and on eel in any relevant habitat including coastal waters.

Method selected for collecting data.

Diadromus species data collection in fresh water is not foreseen. The reasons are that eel (Anguilla anguilla), Atlantic salmon de (Salmo salar) and Brown trout (Salmo trutta) are not present in Romanian waters – marine or fresh waters.

Text Box 2.4: Recreational Fisheries

Region: Black Sea

General comment: This text box fulfils Article 5(2)(a), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter II point 2.2 of the EU MAP Delegated Decision annex. Use this text box to give an overview of the methodology used to collect data on marine and freshwater recreational catches. For freshwater diadromous species, use Table and Text Box 2.3.

Recreational fishing activities at the seaside are an integral part of the life and coastal communities of the Black Sea. It is of particular cultural importance in the region and represents an important economic component of coastal tourism, which is one of the main maritime sectors in terms of gross added value and employment. In the Black Sea region, in the Romanian coastal area, the species eel and bluefin tuna do not exist, only elasmobranchs species, such as picked dogfish (Squalus acanthias), thornback ray (Raya clavata) and common stingray (Dasyatis pastinaca). Picked dogfish inhabiting the Romanian marine waters is a migratory species, with long life cycle, whose stock is strongly influenced by the environmental conditions and fishing effort size. Thornback ray and common stingray, demersal fishes, are leading more sedentary lives and are found half buried in sand at depths of over 70 m. In Romanian fisheries, picked dogfish, thornback ray and common stingray occur mainly as by-catch in the trawler catches, and landings in recent years are only of the order of several tonnes for picked dogfish, and very often as isolated specimens for the other two species. The species eel is not present in Romanian fresh waters.

Recreational fishing on the Romanian Black Sea coast can be done from the shore and as bait used can be natural (shells, frames, fish or poultry) or artificial (metal fish shapes or artificial flies). The permits are issued free of charge, online, by NAFA and for sea fishing, being the border area, it is necessary to obtain the Coast Guard's approval based on the permit issued by NAFA. The main species of fish that are the object of recreational fisheries are: fam. Gobiidae, Carangidae, Mugilidae, Mullidae, Pomatomidae and sometimes Clupeidae, Belonidae and Dasyatidae. In Romania, most fishermen use recreational fishing for food purposes as subsistence fishing. The main target species in recreational fishing are: Neogobius melanostomus / round goby; Mesogobius batrachocephalus / knout goby; Trachurus mediterraneus ponticus / mediterranean horse mackerel; Pomatomus saltatrix / bluefish and Liza aurata / golden grey mullet, Dasyatis pastinaca / common stingray, Alosa pontica / pontic shad, Alosa tanaica / Black Sea shad, Belone belone euxini / garfish, Mullus barbatus ponticus / red mullet (Table 2.4 - Recreational fisheries).

The fishing gear used is the hand lines provided with hooks, such as: handlines with 2 hooks for fishing goby from the boat; handlines with 10 hooks for fishing horse mackerel, blue fish, pontic shad and Black Sea shad from boat or from the docks; pole lines with 2 hooks for golden grey mullet fishing on the shore/docks; handlines with 2 hooks for fishing gobies, mackerel and red mullet on the docks; pole lines with artificial fish for fishing blue fish on the docks and fly fishing for garfish on the docks.

The methodology

According to the legislation in force recreational fishing is carried out from sunrise to sunset and during recreational fishing it is allowed to use a maximum number of 2 gear. During the fishing day, only individuals with legal dimensions will be retained.
The recreational fishing has a seasonal character, practically the activity starts from the end of March when the water temperature reaches values higher than 7° C, the first fish that appear in the catches are the species of gobies, and ends towards the end of November with the decrease temperatures.
As the water temperature rises above 12-13° C, from the second decade of May, timid catches of mackerel begin to be recorded at handlines. Also, in May, small catches also begin to be recorded for the species of fish that can be caught with both the pole lines and the handlines from the docks, respectively the harbour enclosure. From experience, more representative catches for recreational fishing are obtained from the second half of September at gobies, horse mackerel, golden grey mullet and bluefish. If the water temperature is maintained at the level of 13-15° C, catches can be obtained until near the end of November, especially at golden grey mullet which is grouped for wintering, respectively gobies that can be captured until the water temperature drops below 7° C.

The structure of the data to be collected

In order to obtain the information regarding the situation of RF capacities and effort, of the total catch, respectively retained and thrown, respectively the structure of the persons practicing recreational fishing, it is necessary to collect the following transversal variables: fishing area; fishing days; number of fishing gears; weight of total catch and species; weight of total catch retained by species; weight of total catches thrown by species and number of fishermen, by sex, professional status, educational level, etc.
Sampling scheme aimed at collecting information from anglers practicing recreational fishing:
- biological sampling resulting from recreational fishing (length, weight and sex) for: Neogobius melanostomus (round goby); Mesogobius batrachocephalus (knout goby); Trachurus mediterraneus ponticus (mediterranean horse mackerel); Pomatomus saltatrix (bluefish) and Mullus barbatus ponticus (red mullet);
- for the other species that appear in recreational fishing in the form of isolated specimens, respectively the species: Raja clavata (thornbak ray), Dasyatis pastinaca (common stingray), Squalus acanthias (picked dogfish), Liza aurata (golden grey mullet), Belone belone (garfish), Scorpena porcus (black scorpionfish), Trachinus draco (greater weever) and Alosa pontica (pontic shad), no biological data is collected. The other species mentioned in table 2.4, are not found in the area of the Romanian coast of the Black Sea.

Sources of data collection

The main sources of data collection mentioned above are the following documents: the questionnaire sent by each fisherman online, periodic field surveys and interviews with fishermen having fishing permits.

a. The annual fiche on days and captured species and weight retained of the recreational fishermen is the source where information is found regarding all the data needed to carry out an assessment (number fishing months, no. fishing days, no. tools used and fishing technique, fishing area, total catch by species, respectively retained and discarded, etc.). The collection of these data is carried out by the research staff of the NIMRD in collaboration with the NAFA inspectors, with strict compliance with all the requirements regarding the complexity of the data regarding the recreational fishing. Other data sources are data received by NAFA headquarters for the fisherman sending the annual fiche and subsequently transmitted by NAFA to the NIMRD for data centralization and processing;

b. Fishing permits are an indication of the total number of fishermen. Periodic field surveys (interviews with field fishermen regarding catches by species, tools and techniques used, no. of fishing average, number of fishermen, by sex, professional status, educational level, etc.).

The way of data collection

The data is collected annually, with the support of NAFA staff, from all fishermen, from the sources mentioned above.
In addition, data and information are also obtained through regular field surveys through the network of collectors, respectively, interviews with fishermen. Basic and periodic checks are carried out during the fishing operations on all types of tools and techniques used. In both individual and group interviews, the role of the interviewer is to moderate the discussion and to create a framework in which participants are encouraged to participate in the discussion.
In accordance with the obligations regarding different data that should be reported to the EC bodies, GFCM (the annual methodological report on data collection and management statistics on national recreational fisheries), the methods for collecting data above mentioned will be applied to fishermen who having in possession permits for recreational fishing.

Quality of data collected

After completing the data collection process from fisherman, NIMRD, who after a thorough verification of the data (cross-comparing the data from both sources of collection / information such as periodic surveys, interviews with fishermen in the field) is passed to the next stage of analysis / processing with strict observance of the correlation of the data obtained. In the event that there are any uncertainties regarding fishing data, the data providers are contacted for clarifications or corrections if necessary. After a thorough verification, the data is centralized and processed according to the requirements of the external users and uploaded on their platforms, in the requested formats, according to the schedules.

Deviations from the work plan

No deviations.

Action to avoid deviations

Not applicable.

Text Box 2.5: Sampling plan description for biological data

Region: Black Sea

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 2.1(a) of the EU MAP Delegated Decision annex. This text box complements Table 2.5.

The sampling programme is realised in view to obtain the monthly distribution of length on species from catches of landings (number and weight). The data will be collected by metiers, species presented in Tables 1 of the multi-annual Union programmes and according to the relevant GFCM criteria, three different groups have been established, by which the species are listed at subregional level (GFCM subregions):

* The first group refers to the frequency of evaluations (i.e., the species that are evaluated regularly);

* The second refers to the importance of fishing (e.g., landings, catches and / or economic value);

* The third group is based on conservation criteria (i.e., endangered species) or the impact of their presence on the ecosystem (i.e., non-indigenous species).

For the period 2022-2024, biological studies included:

□ group 1: sprat / *Sprattus sprattus*; European anchovy / *Engraulis encrasicolus*; turbot / *Scophthalmus maximus*; Mediterranean horse mackerel / *Trachurus mediterraneus ponticus* and picked dogfish / *Squalus acanthias*;

□ group 2: whiting / *Merlangius merlangus euxinus*; rapa whelk */ Rapana venosa*;

□ group 3**:** thornback ray / *Raya clavata*; common stingray / *Dasyatis pastinaca*; red mullet / *Mullus barbatus ponticus, Pontic shad /Alosa immaculata*.

Species Trachurus trachurus and Trachurus minutus, is not present on the Romanian coast of the Black Sea.

The data needed to calculate the parameters will be obtained from specimens collected from a variety of sources, such as markets, surveys and on-board sampling. Biological sampling will be carried out by the National Institute for Marine Research and Development *Grigore Antipa* Constanta (NIRMD).

The length composition of the catch is available by stock and metier from the metier sampling (Table 2.2 - Table 2.2 - *Planning of sampling for biological variables*). Samples for biological parameters were derived from unsorted catch, retained catch and at-sea surveys. For this purpose, the staff of the research institute (NIRMD) they will be on board vessels, fishing points along the coast and in fishing ports and participated in sea surveys with demersal and pelagic trawling. The methodology used to define the numbers of individuals, that will be sampled is based on the consultation with the Romanian research institute and the Bulgarian research institutes. The total length is measured from the tip of the snout to the tip of the longer lobe of the caudal wing, with the lobes compressed along the midline. The measurement accuracy is one millimetre. Weighing is done when most of the liquid has leaked and the measurement accuracy was 0.1 grams. For small pelagic and demersal species, the representative sample for the age size structure will be collected and stratified by length groups. For small pelagic and demersal species, the representative sampling for size-at-age structure was collected and stratified by length groups. For a number of 3-5 samples for the frequency of length, a sample for the frequency of age will be extracted; calculated by the stratified method, which provides for each length class a constant number of age material (otoliths or scales) - about 10 individuals (if possible, 5 females and 5 males). The age compositions of the catch (unsorted catches, landings) will be derived by applying the "Age-Length Keys" to the length composition of the catch. Sex will be defined macroscopically during dissection, following three categories: male, female and indeterminate (impossible to determine). Age will be determined by reading the otolith at the macrostructural level (sagitta). The reading is performed with a stereomicroscope under reflected light. The counting of the strips or rings is always performed from the central area to the marginal area. Both otoliths of an individual will be read, and the readings are performed by at least two separate readers. The methodology is available in the following link: http://www.rmri.ro/Home/Downloads/Publications.Other/NAFA_COLLECTION%20METHODOLOGIES.pdf (*Ctrl + Click to indicated link*).

According to the agreement between Romania and Bulgaria, both countries will undertake annually biological monitoring in their territorial waters and EEZ under their jurisdiction, following common methodology and harmonization of biological data sampling. The agreement is available at the following link: http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/BilateralAgreements/Agreement-on-data-collection-activities-between-Bulgaria-and-Romania-2021-2027.pdf (*Ctrl + Click to indicated link*).

Following the procedure described in the guidelines for the implementation of the National Programme, Romania determines metiers to sample in table 2.5 (*Sampling plan description for biological data*). For the collection of the data will be used data sources as logbooks, declarations of first sale, Vessels Monitoring System data. All details for the selected metiers are described in the standard tables.

The metiers are the following:

- Pelagic trawls/Midwater otter trawl [OTM]
- Bottom trawls / Beam trawl [TBB]
- Traps/Stationary uncovered pound nets [FPN]
- Nets/Set gillnets [GNS]
- Rods and lines/Hand and pole lines [LHP] [LHM]
- Longlines / Drifting long lines [LLD] and Set longlines [LLS]
- Small-scale inshore metiers / Diving *[DIV]* other types (various) / manual harvesting (by divers).

The target fish species in pelagic trawl fishery is sprat with by-catch of whiting, turbot, anchovy and horse mackerel. In the pound net fishery, the main species in the catches have a seasonal character, the sprat being the target species in spring period and the beginning of the summer and anchovy and horse mackerel in the summer and autumn period. The by-catch in the pound net fishery is composed of whiting, turbot, red mullet

and others demersal species.

In set gillnet fishery, the bottom species with commercial importance is turbot with by-catch of thornback ray, common stingray, spiny dogfish and cetaceans.

Long lines and hand lines are representative for artisanal fishery. The main species in the catches are gobies and horse mackerel.

The sampling resources are allocated to at-sea sampling and shore-based sampling.

The sampling distribution is made depending on the seasonal character of the target species. We must have in view the fact that all marine fishing vessels operate with one day - few days fishing trip, but don't exceed a week. The collection of the random samples from unsorted catches and landings will take place in fishing harbours, fishery points and at sea on vessel board.

The samples are extracted from the catch of trawler fishery, pound net fishery, gillnet fishery and long lines and hand lines fishery. The sampling schemes will be organized in a way that sampling effort is distributed proportionally to the fishing effort. Relatively larger landings during the year imply higher sampling effort and vice versa. This will ensure that the biological data correspond directly to the national landing statistics.

The sampling scheme, strategies and effort will be the following:

a. **Pelagic trawls / Midwater otter trawl [OTM]:**

* SciObsOnShore – quarter, in landing fishing harbours (Cape Midia and Constanta);
***** SciObsAtSea – annual, on board of vessels commercial fishing trip.

A scientific observer will be present at the landing points or will be present at sea on board the vessel. The fish species target of the sampling will be mainly sprat and by-catches (whiting, turbot, anchovy and horse mackerel, picked dogfish).

b. Bottom trawls / Beam trawl [TBB]:

* SciObsOnShore - quarters, in landing fishing harbours (Cape Midia and Constanta). A scientific observer will be present at the landing point.
* SciObsAtSea - annual, on board of vessels commercial fishing trip.

A scientific observer will be present at the landing points or will be present at sea on board the vessel. The target species will be rapa whelk.

c. Traps / Stationary uncovered pound nets [FPN]:

* SciObsOnShore – quarter, in landing fishing points. A scientific observer will be present at the landing point.
* SciObsAtSea – annual, on board of boats commercial fishing trip

The fish species object of the sampling will be: ***sprat*** in spring and early summer, ***anchovy*** and ***horse mackerel*** in summer and autumn. A scientific observer will be present at the landing points or at sea on board of the vessels. The same sampling of unsorted and retained catches was included, sampling of discarded species for which stock variables are collected in Table 1 - species. The species of fish sampled were sprat, anchovy, red mullet and horse mackerel, and the secondary catches (by-catch) were: Pontic shad, Azov shad, red mullet, turbot, big-scale sand smelt, garfish, gobies, picked dogfish, common stingray, thornback ray, sea sole.

d. Nets/Set gillnets [GNS]:

* **SciObsOnShore** – in landing fishing harbours and landing fishing points; A scientific observer will be present at the landing point;
* **SciObsAtSea** - on board of boats commercial fishing trip.

The sampling scheme for fixed gillnet fisheries targeted demersal and pelagic species in a small-scale coastal fishery, including the similar sampling of captured catches and the collection of total catch data, effort (quantities, days at sea), catch composition, mesh size and fishing depth. A scientific observer will be present at the landing points or at sea on board of the vessels. Polyvalent activity is a common practice of small coastal craft, which means they are involved in different metiers, and, during daily exits at sea, they can fish

on multiple metiers. The demersal species object of the sampling is turbot and also by-catches of thornback ray, common stingray, picked dogfish and red mullet. The pelagic species object of the sampling is Pontic shad and Caspian shad.

e. Rods and lines/Hand and pole lines [LHP] [LHM]:

► **SciObsOnShore** – quarter, in landing fishing points:

Long-haul and hook-fishing is representative for artisanal fishing (vessels < 06 m), the collection of samples will be made from fishing points along the Romanian coast. A scientific observer will be present at the landing point. The collected biological data will be reported by fleet segments, gear type, mesh size and target species. Target species in catches were mainly gobies, picked dogfish and sometimes horse mackerel.

f. Longlines / Drifting long lines [LLD] / Set longlines [LLS]

► **SciObsOnShore** - in landing fishing points:

Longlines is representative for artisanal fishing, the collection of samples will be made from fishing points along the Romanian coast. A scientific observer will be present at the landing points. Target species in longlines are mainly gobies and picked dogfish. Romania considers the STECF evaluation very important and takes into account their comments with the intention of applying as many of the recommendations as possible. In the last six years, longlines fishing has not been used in Romanian waters. During 2022-2024 it is possible that this kind of fishing with longlines for picked dogfish could have an improvement, at this moment the catches of dogfish were less than 0.7 tonnes and were generally caught as a complementary species in turbot gillnets.

g. Small-scale inshore metiers / Diving *[DIV] Manual harvesting of Rapa whelk* (*Rapa venosa*).

SciObsOnShore - in landing fishing points:

Samples will be collected quarterly, by the presence of a scientific observer at the landing point or, if possible, at sea on board boats. The target species will be rapa whelk.

This sampling scheme covers all fishing metiers and fleet segments used at the Romanian coast.

For all kind of fishery will be used the appropriate methods covering the metiers as specified in Table 2.2, including the listed species, and as per sampling frame description mentioned in Table 2.5.

2. Deviations from the Work Plan

The deviations from the planned activities are related to the oversampling of commercial catches due to random collection from significant number of catches in terms of numbers, as the data collection did not imply additional costs and efforts of the technical team performed the sampling.

3. Action to avoid deviations

Not applicable

Text Box 2.6: Research surveys at sea

Research survey: Black Sea

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Pelagic trawl survey in the Black Sea (***PTSBS***)

1. ***Objectives of the survey***

The aim of the pelagic trawl survey in the Black Sea is the assessment of the stock biomass of sprat (*Sprattus sprattus*) (Table 2.6 - *Research surveys at sea*). Furthermore, an analysis of the distribution and abundance of the other species caught as by-catch will be presented.

* Estimating abundance indices (by number and biomass) of the main pelagic species of commercial interest distributed at a depth between 10 m and 100 m;

* Describing the demographic structure of species of interest to the fishery, together with spatial distribution patterns;

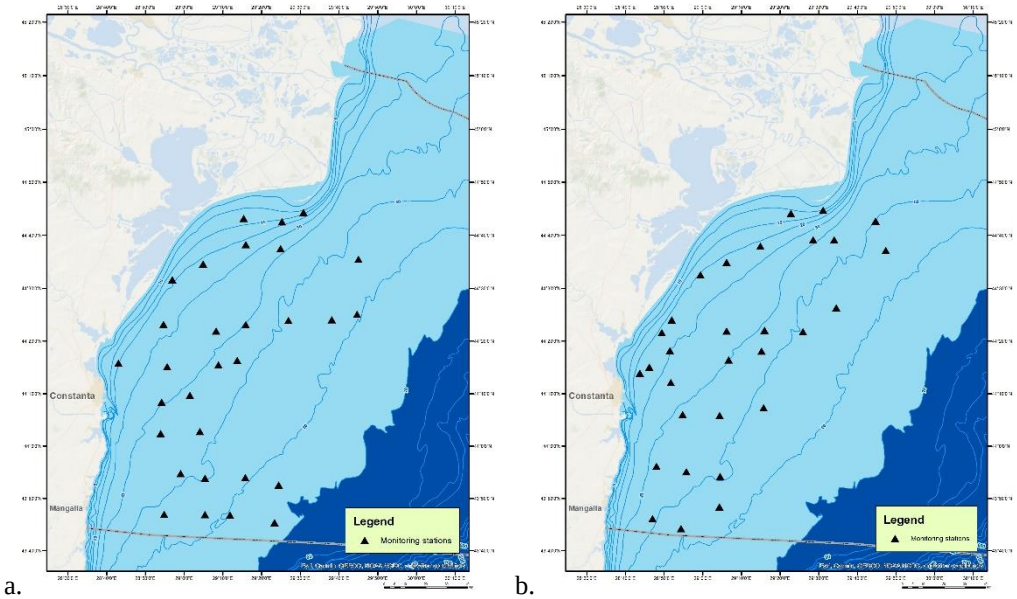
* Undertaking size and biological sampling, including extraction of parts to determine the age of the main species targeted by the fishery;

* Assessing the impact of fishing activity on the environment.

2. ***Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation*** **(map)**

The Romanian national program for 2022-2024, includes two pelagic surveys annually:

- *Pelagic trawl survey in the Black Sea in spring season* (quarter II / June) (Fig. 1 a);
- *Pelagic trawl survey in the Black Sea in autumn season* (quarter IV / October – November) (Fig. 1 b).



a. b.

Fig. 1 Pelagic trawl planned distribution points (a – sprig season and b-autumn season)

The trawl surveys for sprat stock assessment are planned for June (spring season) and October - November (autumn season) applying the swept area method in the Romanian Black Sea area. To establish the abundance of the reference species in front of the Romanian coast a standard methodology for stratified sampling was used (Gulland, 1966;). To address the research objectives the region was divided into four strata according to depth – Stratum 1 (15 - 35 m) Stratum 2 (35 - 50 m), Stratum 3 (50 - 75 m). Each field is a rectangle with sides 10' Lat × 10' Long and area around 125.16 km^2 (measured by application of GIS), large enough for a standard lug extent in a meridian direction to fit within the field boundaries.

Each survey includes 30 mid-water trawl hauls for 8 days.

The main aim of the survey is to obtain the abundance index for sprat, whiting and picked dogfish exploited stock. During the surveys the collected information will include length (TL), weight, sex composition and maturity. Otoliths for age determination will be collected and discards will be investigated. The methodology pelagic survey is available in the following link:

http://www.rmri.ro/Home/Downloads/Publications.Other/NAFA_Material%20and%20methods%20for%20survey%20in%20the%20Romanian%20Black%20Sea%20area.pdf (*Ctrl + Click to indicated link*).

Gear: A standard pelagic trawl (57/63 - 62 m) is used. This includes specifications for the material and its rigging from the doors to the cod end of the net. The net is a pelagic trawl designed for experimental fishing with scientific purpose, which can be used over the whole depth range and in the various conditions encountered in the whole survey area. The net has a relatively large vertical (11 - 12 m) and horizontal (20.0 m) opening. The mean speed of the vessel was 2.2 - 2.6 kts, with a standard trawling time of 30 minutes.

Vessel: The surveys will be made with the "*Steaua de Mare 1*" research vessel, using the pelagic trawl, all over the entire Romanian area. The same gear used during past years will be used and similar data will be collected, using the same methodologies and creating a common age-length key.

Participating institutions: The National Institute for Marine Research and Development Constanta (NIMRD) is responsible for carrying-out the survey in Romanian waters.

Collected information from the sprat survey: the data recorded for each haul includes: *depth, measured by the vessel's echo sounder; GPS coordinates of start/end haul points; haul duration; abundance of the target species; weight of total catch; absolute and standard length, individual weight of the separate specimens; otoliths collection for age determination; sex identification and the species composition of the by-catch.*

The results obtained will be presented as maps and tables comprising data on: for the turbot and sprat surveys, additional information for the calculation of the catch per unit effort (CPUE/kg/hour) and the catch per unit area (CPUA/kg/km^2) in the swept fields will be provided. Collected data will be stored in the NIMRD database, as well as in a module especially developed as a part of the Romanian NAFA.

3. *For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey*

In Romania, the pelagic trawl surveys are performed without the participation of other MS, but according to the agreement between Romania and Bulgaria, both countries will undertake annually research surveys in their territorial waters and EEZ under their jurisdiction, following common methodology, harmonization of biological data sampling and analysis and harmonization of stock assessment methods (the obligations stipulated by the new Collaboration Agreement, concluded between NAFA Romania and NAFA Bulgaria, on **11 October 2021** (no. 10014), http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en – New Agreement (*Ctrl + Click to indicated link*)

Both countries will follow the methodologies published in their web pages, accomplished by the technical guidelines for scientific surveys in the Mediterranean and the Black Sea. - FAO Fisheries and Aquaculture Technical Papers No. 641. and methodologies already adopted by other EU countries: MEDIAS handbook. The pelagic trawl survey results are presented during the MEDIAS meeting.

4. *Where applicable, describe the international task sharing (physical and/or financial) and the cost sharing agreement used*

In accordance with the acting legislation in Romania and Bulgaria, respectively, the partners commit to provide the financial means for the scientific surveys and working meetings (the cost will be covered by national NAFA with contribution of European).

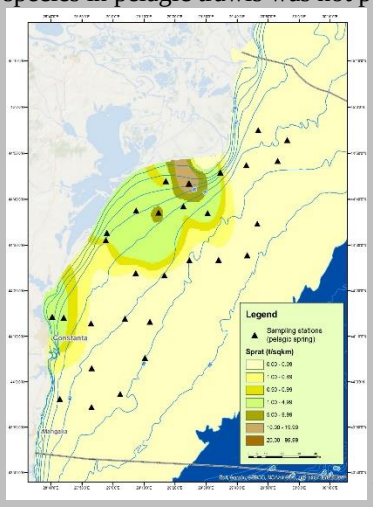
The type of participation was marked in Table 2.6 as 'Combination' even though no other MS participate in the pelagic trawl surveys performed in the Romanian territorial waters. The '*Combination*' consists of 'Financial', 'Technical' and 'Personnel', but none of them is a matter of Cost-sharing agreement, because the signed agreement with Bulgaria is only for coordination of methodologies and activities.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.

The surveys with Romanian demersal and pelagic trawls are coordinated with Bulgaria. Romanian representatives attended, were represented at the MEDIAS meeting: http://www.medias-project.eu/medias/website; DG-Mare-JRC - (https:// datacollection.jrc.ec.europa.eu/dcf) and GFCM.

6. List the main use of the results of the survey (e.g., indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

Pelagic trawl spring surveys: in 2022, the calculated biomasses for the main pelagic fish species at the Romanian coast were: sprat (20,347.06 t / Fig. 1G2a) and whiting (102.04 t /Fig. 1G3a). In the spring season, agglomerations biomass of sprat was lower by about 50 % compared with the previous year. Due to the very small catches and the small number of specimens of picked dogfish caught, both in the spring season, the evaluation of the species in pelagic trawls was not performed.

a. 

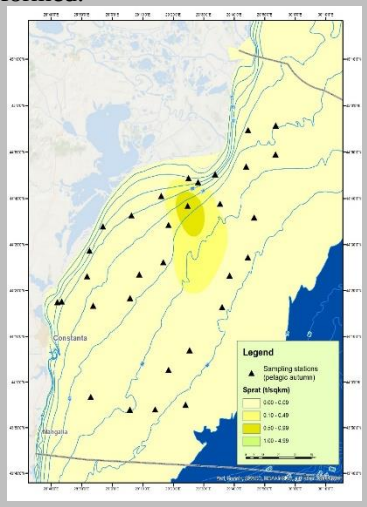
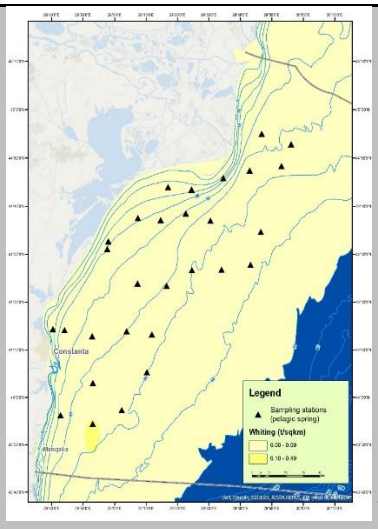
b. 

Fig. 1G2 Distribution of sprat agglomerations in the spring (a) and autumn season (b), pelagic trawl survey, in 2022

a. 

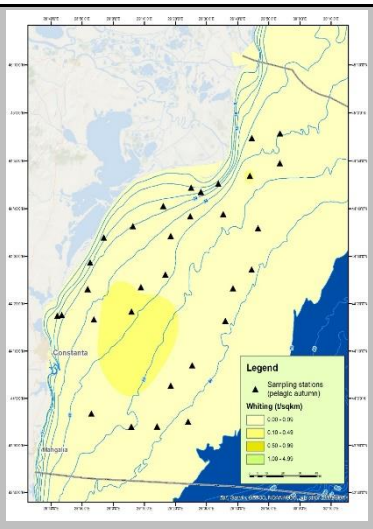
b 

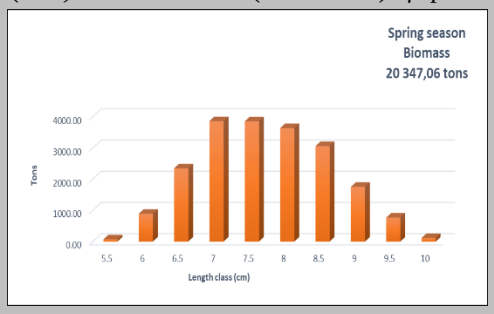
Fig. 1G3 Distribution of whiting agglomerations in the spring (a) and autumn season (b), pelagic trawl survey, in 2022

Pelagic trawl autumn surveys: in 2022, the calculated biomasses for the main pelagic fish species at the Romanian coast were: sprat (565.92 t / Fig. 1G2b) and whiting (466.96 t /Fig. 1G3b). In the autumn season of 2022, the biomass of sprat agglomerations was very low in comparison with the previous year. Due to the catches and the small number of captured dogfish specimens caught, in the autumn season, the assessment of the species in pelagic trawls was not performed.

Pelagic spring survey
Evaluation of sprat agglomerations in the pelagic trawl expedition, in the spring season of 2022
Sprat / June 2022

Depth range (m)	***0–30 m***	***30–50 m***	***50-70 m***	***Total***
Investigated area (Km^2)	**2200**	**4050**	**2500**	**8750**
Variation of the catches (t/Km^2)	**0.759-21.984**	**0.000-1.999**	**0.000-0.000**	**0.000-21.984**
Average catch (t/ Km^2)	**4.732**	**0.131**	**0.000**	**1.621**
Biomass of the fishing agglomerations (t)	**11608.19**	**648.53**	**0.000**	**12256.72**
Biomass extrapolated the Romanian shelf (t)				**20347.06**

Biomass (tons) and abundance (individuals) *of sprat*

a. 

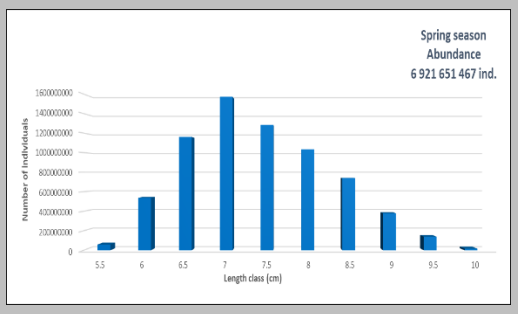
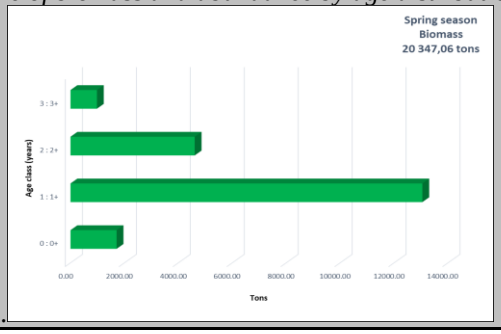
b. 

Fig. 1G4 Structure by lengths of biomass (a) and abundance (b) of sprat during spring pelagic survey

Structure of biomass and abundance by age distribution

a. 

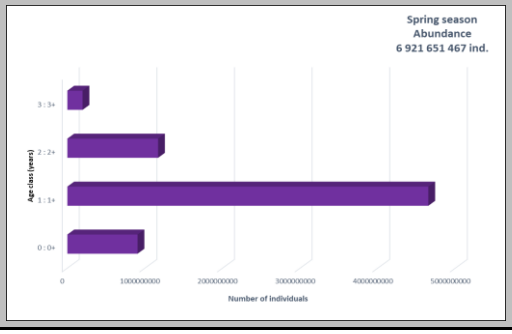
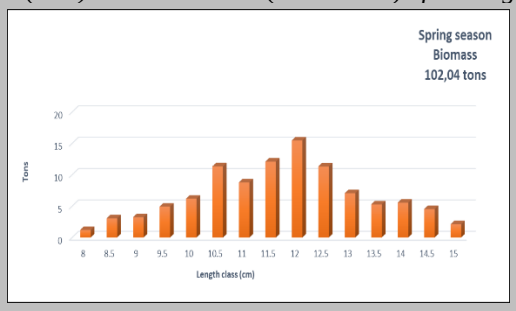
b. 

Fig. 1G5 Structure by ages of biomass (a) and abundance (b) of sprat during spring survey

Evaluation of whiting agglomerations in the pelagic trawl expedition, in the spring season of 2022
Whiting / June 2022

Depth range (m)	*0–30 m*	*30–50 m*	*50-70 m*	*Total*
Investigated area (Km^2)	**2200**	**4050**	**2500**	**8750**
Variation of the catches (t/Km^2)	**0.000-0.060**	**0.000-0.100**	**0.000**	**0.000-0.100**
Average catch (t/ Km^2)	**0.014**	**0.007**	**0.000**	**0.007**
Biomass of the fishing agglomerations (t)	**34.05**	**33.58**	**0.00**	**67.63**
Biomass extrapolated the Romanian shelf (t)				**102.04**

Biomass (tons) and abundance (individuals) *of whiting*

a. 

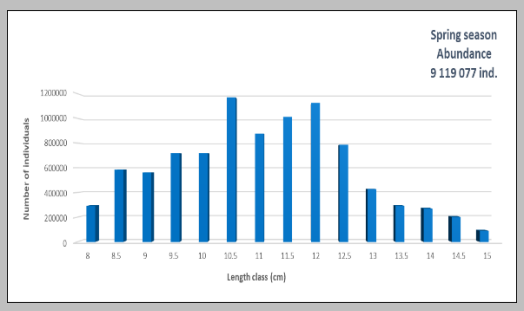
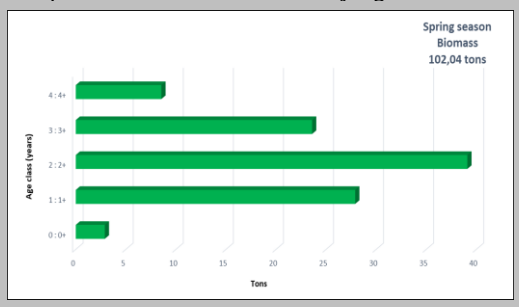
b. 

Fig. 1G6 Structure by lengths of biomass (a) and abundance (b) of whiting during spring pelagic survey
Structure of biomass and abundance by age distribution

a. 

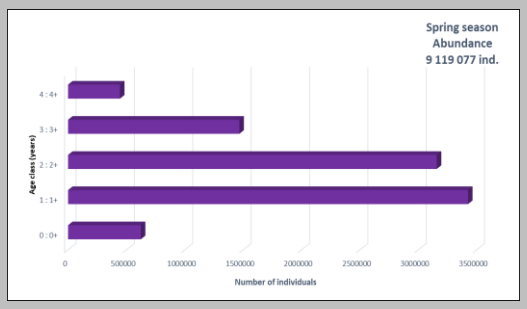
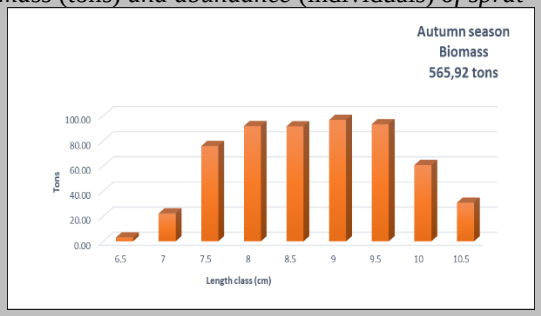
b. 

Fig. 1G7 Structure by ages of biomass (a) and abundance (b) of whiting during spring survey

Pelagic autumn survey
Evaluation of sprat agglomerations in the pelagic trawl expedition, in the autumn season of 2022
Sprat / October 2022

Depth range (m)	*0–30 m*	*30–50 m*	*50-70 m*	*Total*
Investigated area (Km^2)	**1600**	**3400**	**3800**	**8800**
Variation of the catches (t/Km^2)	**0.000-0.014**	**0.000-0.999**	**0.000**	**0.000-0.999**
Average catch (t/ Km^2)	**0.001**	**0.085**	**0.000**	**0.029**
Biomass of the fishing agglomerations (t)	**3.35**	**419.00**	**0.00**	**422.35**
Biomass extrapolated the Romanian shelf (t)				**565.92**

Biomass (tons) *and abundance* (individuals) *of sprat*

a. 

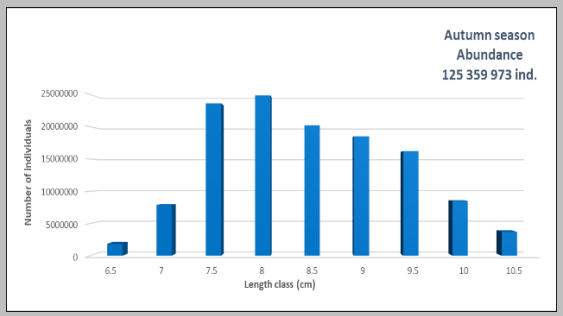
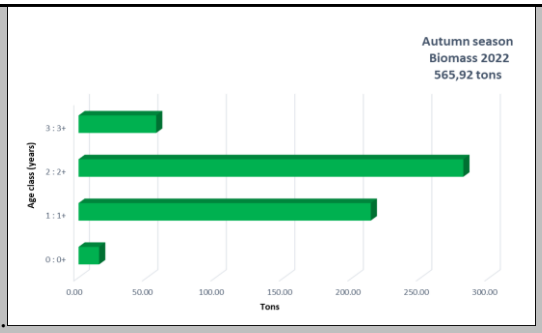
b. 

Fig. 1G8 Structure by lengths of biomass (a) and abundance (b) of sprat during autumn pelagic survey
Structure of biomass and abundance by age distribution

a. 

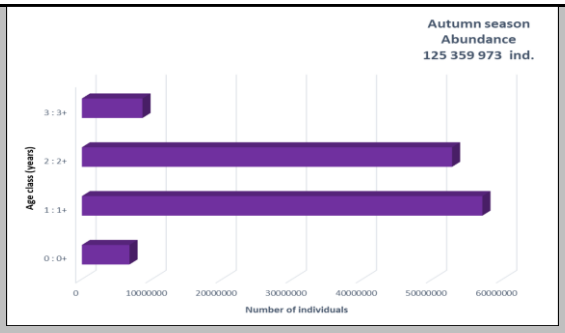
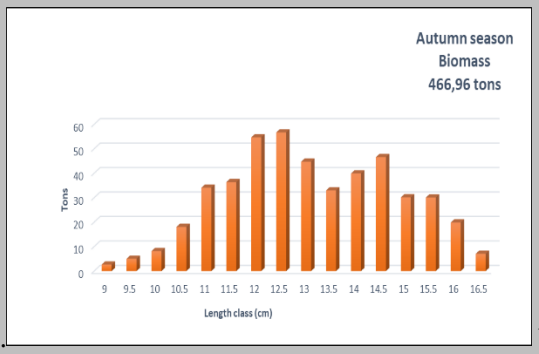
b. 

Fig. 1G9 Structure by ages of biomass (a) and abundance (b) of sprat during autumn survey

Evaluation of whiting agglomerations in the pelagic trawl expedition, in the autumn season of 2022
Whiting / October 2022

Depth range (m)	***0–30 m***	***30–50 m***	***50-70 m***	***Total***
Investigated area (Km^2)	**1600**	**3400**	**3800**	**8800**
Variation of the catches (t/Km^2)	**0.000 – 0.040**	**0.010-0.100**	**0.002-0.060**	**0.000-0.100**
Average catch (t/ Km^2)	**0.004**	**0.050**	**0.014**	**0.022**
Biomass of the fishing agglomerations (t)	**8.91**	**244.83**	**101.77**	**355.51**
Biomass extrapolated the Romanian shelf (t)				**466.96**

Biomass (tons) and abundance (individuals) of whiting

a. 

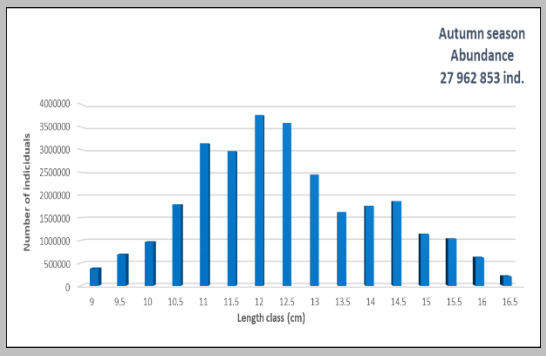
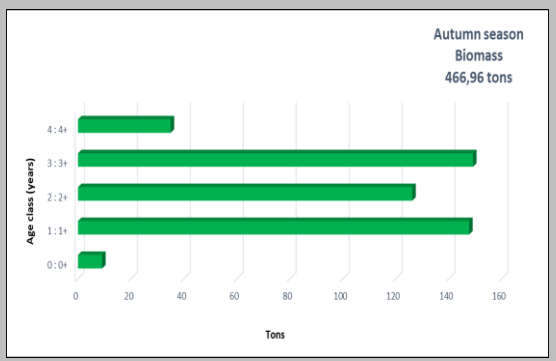
b. 

Fig. 1G10 Structure by lengths of biomass (a) and abundance (b) of whiting during autumn pelagic survey
Structure of biomass and abundance by age distribution

a. 

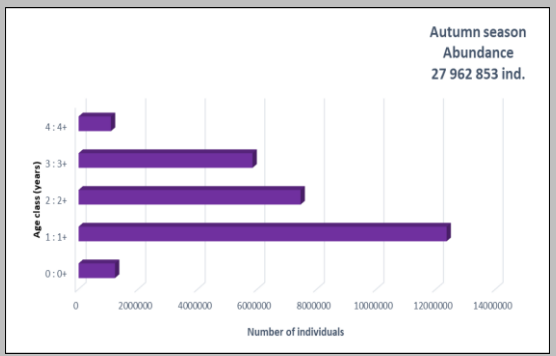
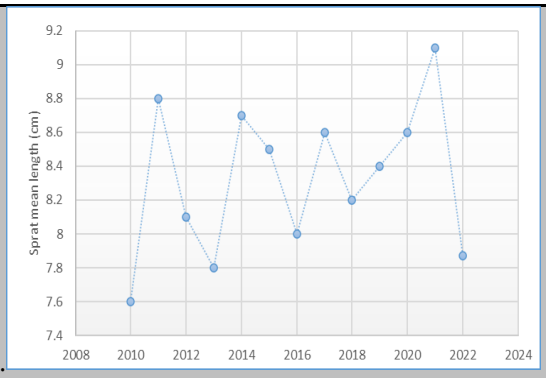
b. 

Fig. 1G11 Structure by ages of biomass (a) and abundance (b) of whiting during autumn survey

a. 

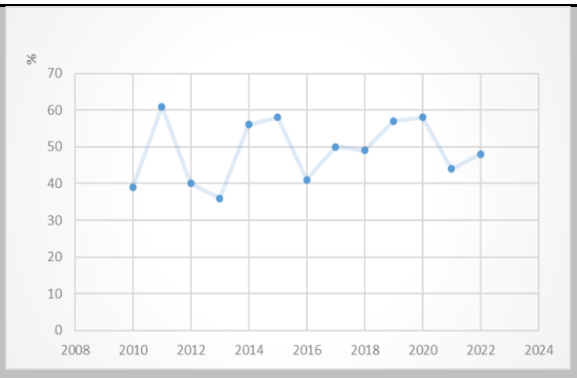
b. 

Fig. 1G12 The average length (a) and percentage (b) of sprat specimens larger than the average size at first sexual maturation in the period 2010 – 2022

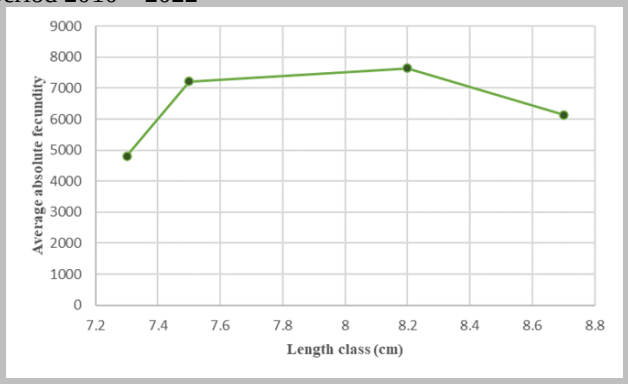
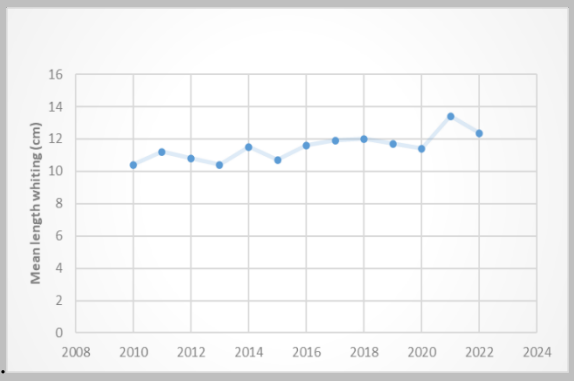


Fig. 1G13 The average values of absolute fecundity determined by sprat in 2022

a. 

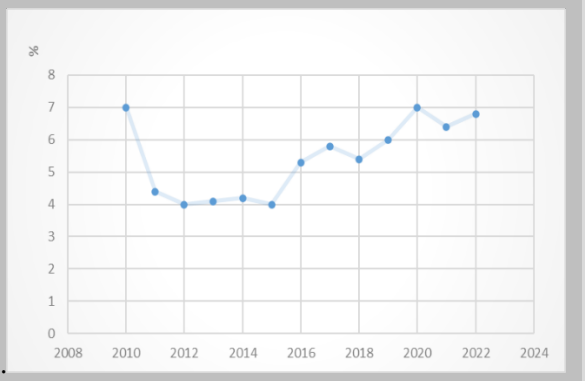
b. 

Fig. 1G14 The average length (a) and percentage (b) of whiting specimens larger than the average size at first sexual maturation in the period 2010 – 2022

7. Extended comments

If the Member State has extended AR Comments, these can be placed under this section. If this is the case, a reference to this text box should be provided in the corresponding tables.

During the surveys at sea and at the fishing points along the Romanian Black Sea coast, in accordance with the activities provided in the National Program, information on incidental by-catch of birds, mammals, reptiles and fish were collected. Species striped red mullet / *Mullus surmuletus*, not present in Romanian area. Also, data on the presence of mammals in the area of the stationary and the active fishing gears and the presence of marine litter, both on land and at sea, were collected. All the collected data have been reported to the international bodies to which Romania has adhered or participated as a partner in the ongoing international projects. Thus, mammalian data were reported annually to ACCOBAMS (http://www.accobams.org/) and data on marine litter were uploaded to the EMOD-NET platform (https://www.emodnet-chemistry.eu/).

General Comment: This text box fulfils Article 5(1)(b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapters I and II of the EU MAP Implementing Decision annex. It is intended to specify which research surveys at sea, as set out in Table 2 of the EU MAP Implementing Decision annex will be carried out. Member States shall specify whether the research survey is included in Table 2 of the EU MAP Implementing Decision annex or whether it is an additional survey.

Bottom trawl survey in the Black Sea (*BTSBS*)

1. *Objectives of the survey*

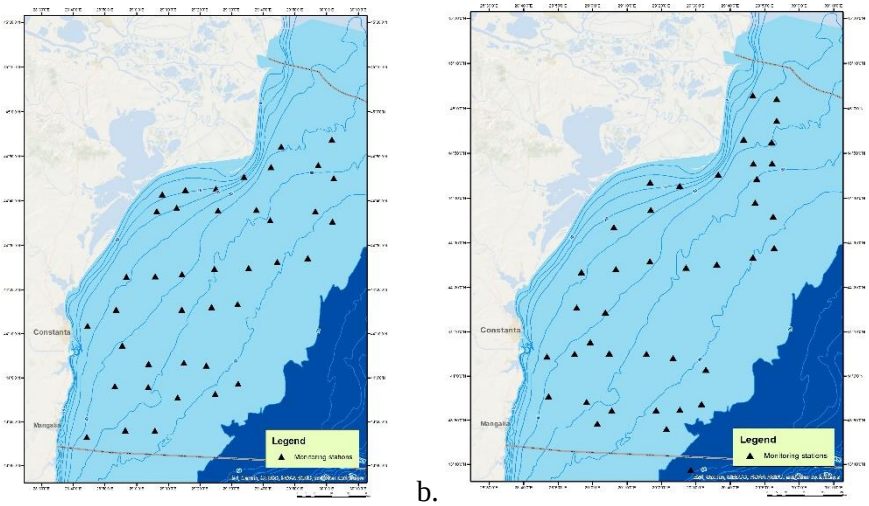
The aim of the bottom trawl survey in the Black Sea is the assessment of the stock biomass of turbot (*Scophthalmus maximus*) (Table 2.6 - *Research surveys at sea*), along the Romania Black Sea coast, estimation of the biomass and abundance of the reference species by depth strata and study of size/age and sex structure, food composition, by-catch, distribution of the stock. Furthermore, an analysis of the distribution and abundance of the other species caught as by-catch will be presented (piked dogfish and whiting).

* Estimating abundance indices (by number and biomass) of the main pelagic species of commercial interest distributed at a depth between 10 m and 100 m;
* Describing the demographic structure of species of interest to the fishery, together with spatial distribution patterns;
* Undertaking size and biological sampling, including extraction of parts to determine the age of the main species targeted by the fishery;
* Assessing the impact of fishing activity on the environment.

2. *Description of the methods used in the survey. For mandatory surveys, link to the manuals. Include a graphical representation* (map)

The Romanian national program for 2022-2024, includes two bottom (demersal) surveys annually:

- *Bottom trawl survey in the Black Sea in spring season* (quarter II / April - May) (Fig. 2 a);
- *Bottom trawl survey in the Black Sea in autumn season* (quarter IV / November - December) (Fig. 2 b).



a. b.

Fig. 2 Bottom trawl planned distribution points (a – sprig season and b-autumn season)

Two surveys for turbot stock assessment by swept area method will be conducted, in April-May and November - December. The surveyed region will be divided into four strata, depending on the depth – Stratum 1 (15-35 m), Stratum 2 (35-50 m), Stratum 3 (50-75 m) and Stratum 4 (75-100 m). For assessment of turbot, whiting and piked dogfish abundance and biomass, the surveyed territory will be divided into 100 squares. The sampling will be carried out at 40 randomly chosen fields (rectangles) in the spring and 40 in autumn, situated at a depth between 15-100 m. Each rectangle is

with sides 10'Lat × 10'Long, while the total area is 125.16 km^2 (measured by GIS), large enough for a standard lug extent in a meridian direction to fit within the field boundaries.
The main goal is to define the stock biomass indices and the annual quota for turbot, whiting and picked dogfish fishery, respectively. Through this field research, biological data about the turbot size-at-age structure, distribution, sex ratio, and by-catch will be gained.
Each survey includes 40 bottom trawl hauls for 10 days. The methodology bottom survey is available in the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/ROU_Methodology_for_Bottom_trawl_survey_in_the_Romanian_Black_Sea_area.pdf (*Ctrl + Click to indicated link*).

Gear: A standard bottom trawl (22/27-34) is used. This includes specifications for the material and its rigging from the doors to the codded of the net. The net is a bottom trawl designed for experimental fishing with scientific purpose, which can be used over the whole depth range and in the various conditions encountered in the whole survey area. The net has a relatively large vertical (2.0 m) and horizontal (13.5 m) opening. The mean speed of the vessel was 1.8-2.0 kts, with a standard trawling time of 60 minutes.

Vessel: The surveys will be made with the "*Steaua de Mare 1*" research vessel, using the demersal trawl, all over the entire Romanian area. The same gear used during past years will be used and similar data will be collected, using the same methodologies and creating a common age-length key.

Collected information from the turbot survey: *depth, measured by the vessel's echo sounder; GPS coordinates of start/end haul points; haul duration; abundance of the target species; weight of total catch; absolute and standard length, individual weight of the separate specimens; otoliths collection for age determination; sex identification and the species composition of the by-catch.*

The results obtained will be presented as maps and tables comprising data on: for the turbot and sprat surveys, additional information for the calculation of the catch per unit effort (CPUE/kg/hour) and the catch per unit area (CPUA/kg/km^2) in the swept fields will be provided. Collected data will be stored in the NIMRD database, as well as in a module especially developed as a part of the Romanian NAFA.

3. *For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey*

In Romania, the bottom trawl surveys are performed without the participation of other MS, but according to the agreement between Romania and Bulgaria, both countries will undertake annually research surveys in their territorial waters and EEZ under their jurisdiction, following common methodology, harmonization of biological data sampling and analysis and harmonization of stock assessment methods (the obligations stipulated by the new Collaboration Agreement, concluded between NAFA Romania and NAFA Bulgaria, on **11 October 2021** (no. 10014) http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/Bilateral Agreements/Agreement-on-data-collection-activities-between-Bulgaria-and-Romania-2021-2027.pdf (*Ctrl + Click to indicated link*)

Both countries will follow the methodologies published in their web pages, accomplished by the technical guidelines for scientific surveys in the Mediterranean and the Black Sea. - FAO Fisheries and Aquaculture Technical Papers No. 641. and methodologies already adopted by other EU countries: MEDITS handbook. The bottom trawl survey results are presented during the MEDITS meeting.

4. *Where applicable, describe the international task sharing (physical and/or financial) and the cost sharing agreement used*

In accordance with the acting legislation in Romania and Bulgaria, respectively, the partners

commit to provide the financial means for the scientific surveys and working meetings (the cost will be covered by national NAFA with contribution of European).

The type of participation was marked in Table 2.6 as 'Combination' even though no other MS participate in the pelagic trawl surveys performed in the Romanian territorial waters. The '*Combination*' consists of 'Financial', 'Technical' and 'Personnel', but none of them is a matter of Cost-sharing agreement, because the signed agreement with Bulgaria is only for coordination of methodologies and activities.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group.

The surveys with Romanian demersal and pelagic trawls are coordinated with Bulgaria. Romanian representatives attended, were represented at the MEDITS; DG-Mare – JRC (https://datacollection.jrc.ec.europa.eu/dcf) and GFCM.

6. List the main use of the results of the survey (e.g., indices, abundance estimates, environmental indicators). Specify in which context the results are used (on a routine basis), both in international and national context.

***Bottom trawl spring surveys*:** in 2022, the calculated biomasses for the main demersal fish species at the Romanian coast were: turbot (2,327.55 t /Fig. 1G16, 1G17, 1G18, 1G19 and 1G20); picked dogfish (424.89 t /Fig. 1G21, 1G22 and 1G23) and whiting (4,448.51 t / Fig. 1G24a). In 2022, the biomass of turbot agglomerations registered values lower to those achieved in 2021 by about 30%. For whiting biomass, the calculated biomass had normal fluctuations in comparison with previous year.

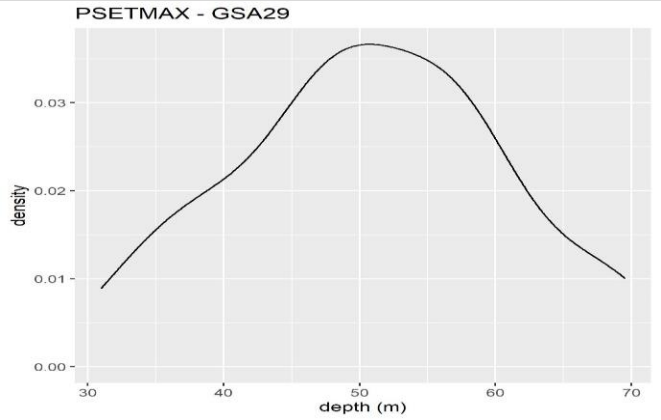


Fig. 1G16 Density of turbot specimens as a function of depth (m), in spring season, in 2022

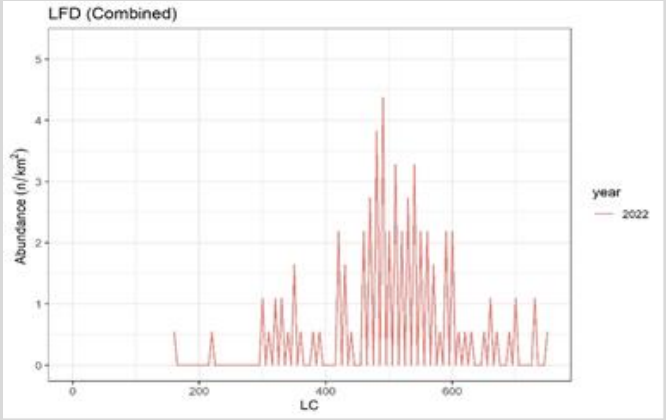
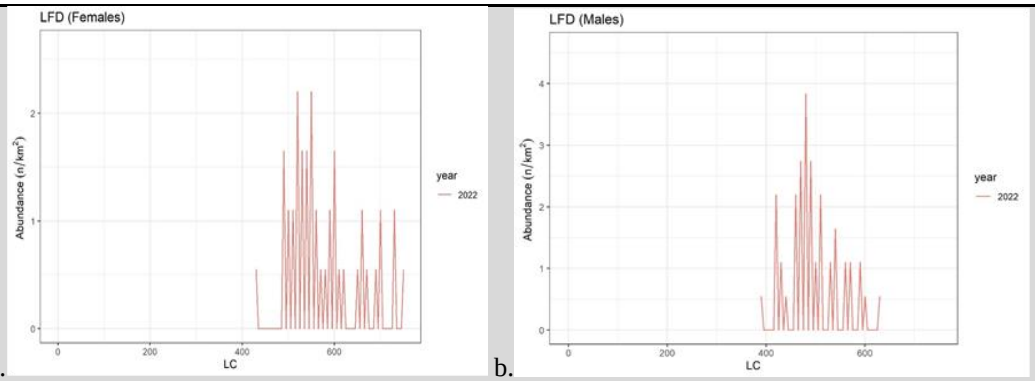
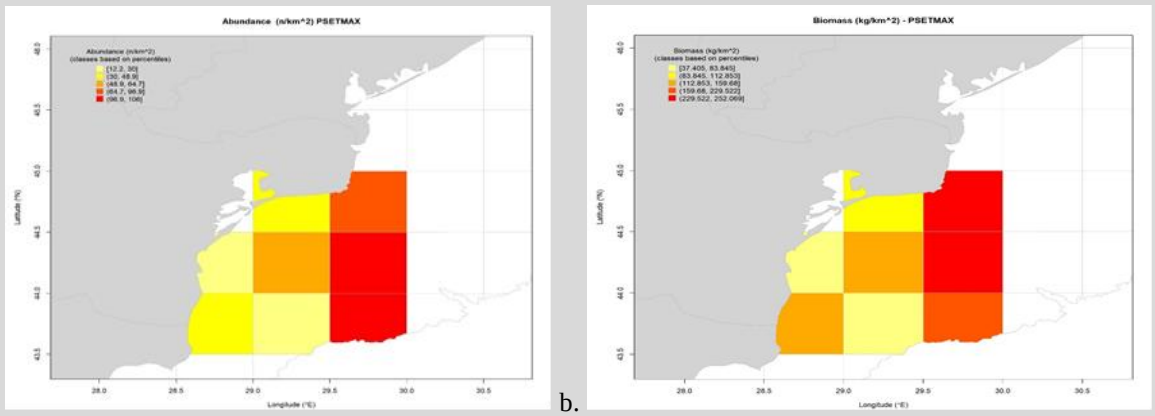


Fig. 1G17 Length frequency distribution of combined turbot in spring season, in 2022



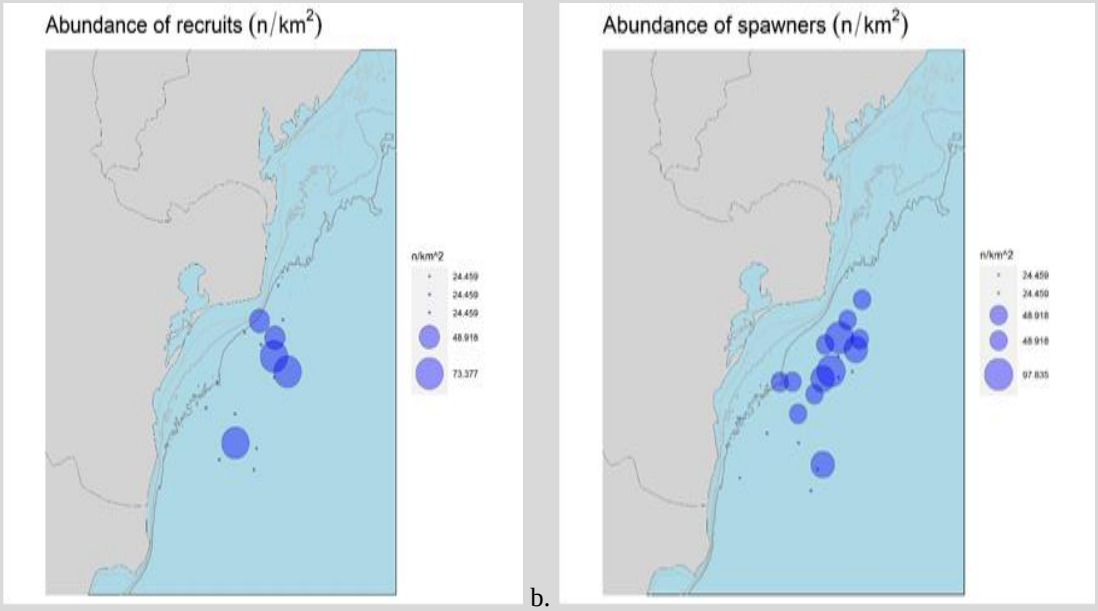
a. b.

Fig. 1G18 Length frequency distribution of female's (a) and male's (b) for turbot, in spring season, in 2022



a. b.

Fig. 1G19 Spatial distribution of abundance (a/n/Km^2) and biomass (b/kg/Km^2) indices of the turbot, in spring season 2022



a. b.

Fig. 1G.20 Abundance of recruits (a; n/Km^2) and spawners (b; n/Km^2), of turbot, in spring season in 2022

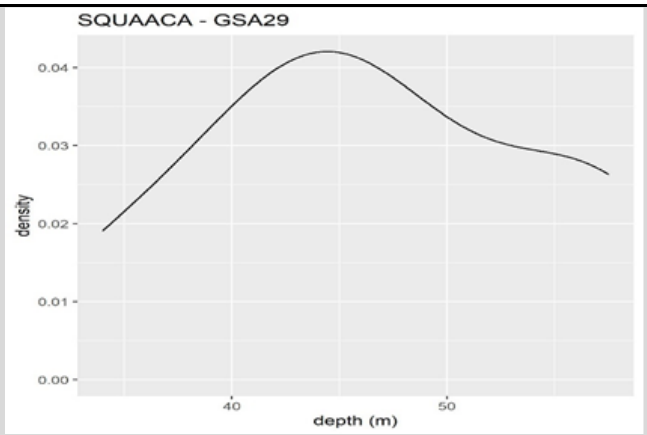


Fig. 1G21 Density of piked dogfish specimens according to depth (m), in spring season, in 2022

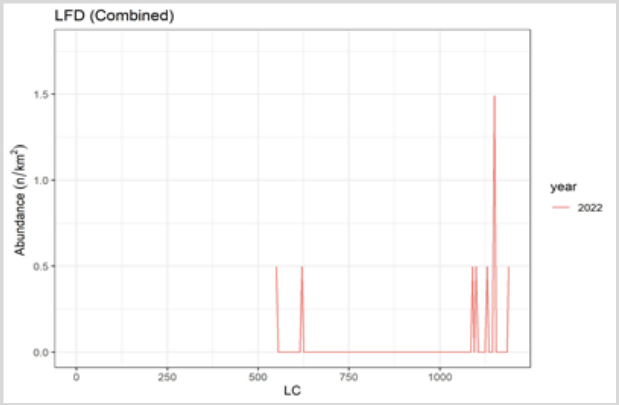


Fig. 1G22 Length frequency distribution of combined picked dogfish, in spring season, in 2022

a. b.

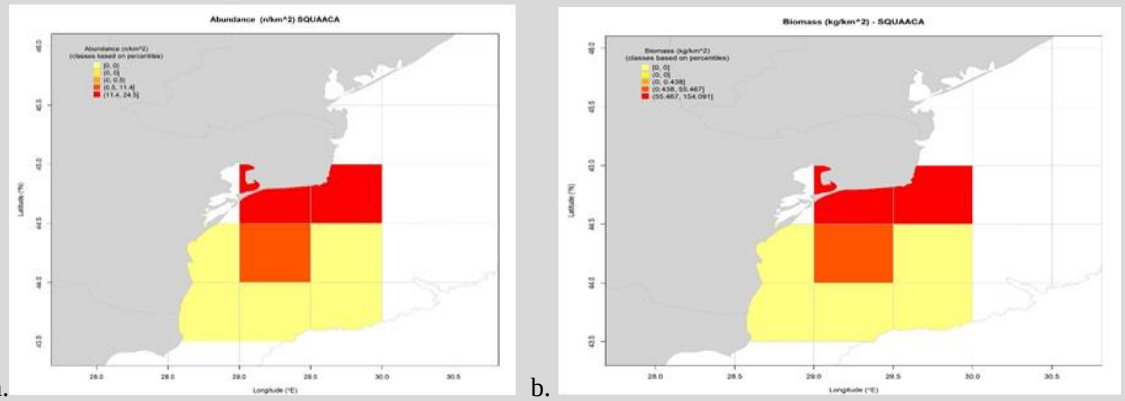
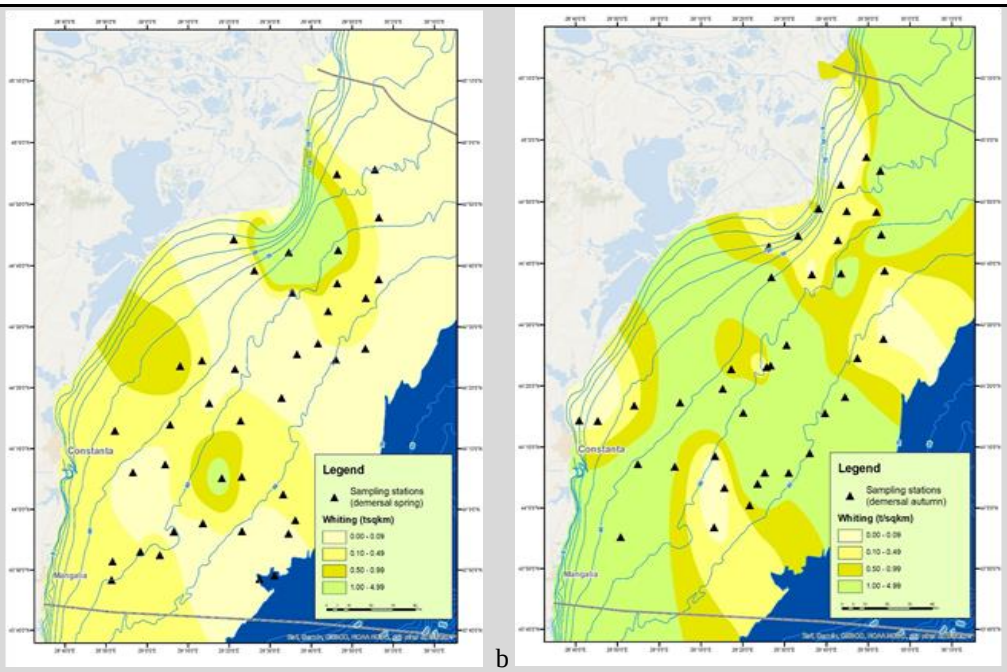


Fig. 1G23 Spatial distribution of abundance (a) and biomass (b) indices of the picked dogfish, in spring season 2022



a. b

Fig. 1G24 Distribution of whiting agglomerations in the spring (a) and autumn season (b), bottom trawl survey, in 2022

Bottom trawl autumn surveys: in 2022, the calculated biomasses for the main demersal fish species at the Romanian coast were: turbot 3,424.86 t /Fig. 1G15b, Fig. 1G25, 1G26, 1G26, 1G27, 1G28 and Fig. 1G29); picked dogfish (631.23 t / 1G30 and 1G31) and whiting (16,066.49 t / Fig. 1G23b). In 2022, the biomass of turbot agglomerations recorded values close to those obtained in the autumn season of 2021.

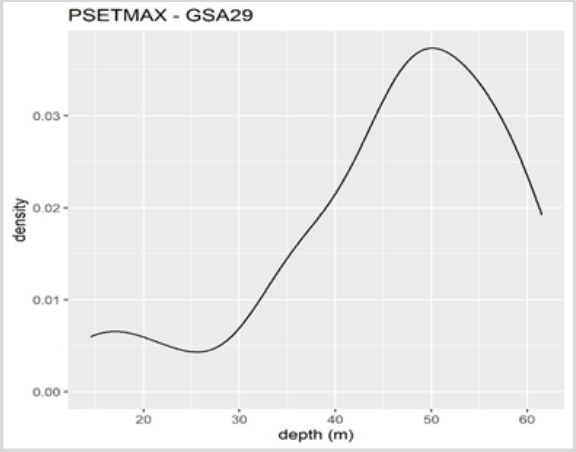


Fig. 1G25 Density of turbot specimens according to depth (m), in autumn season, in 2022

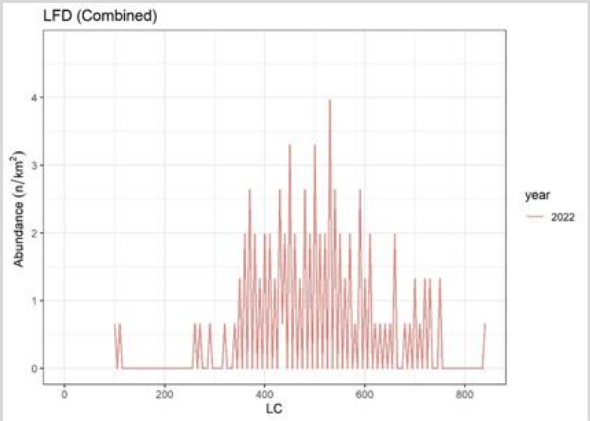
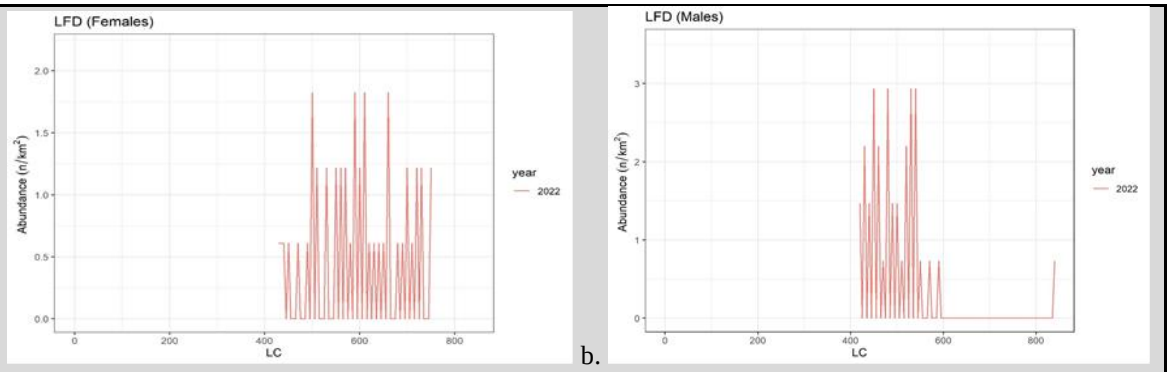
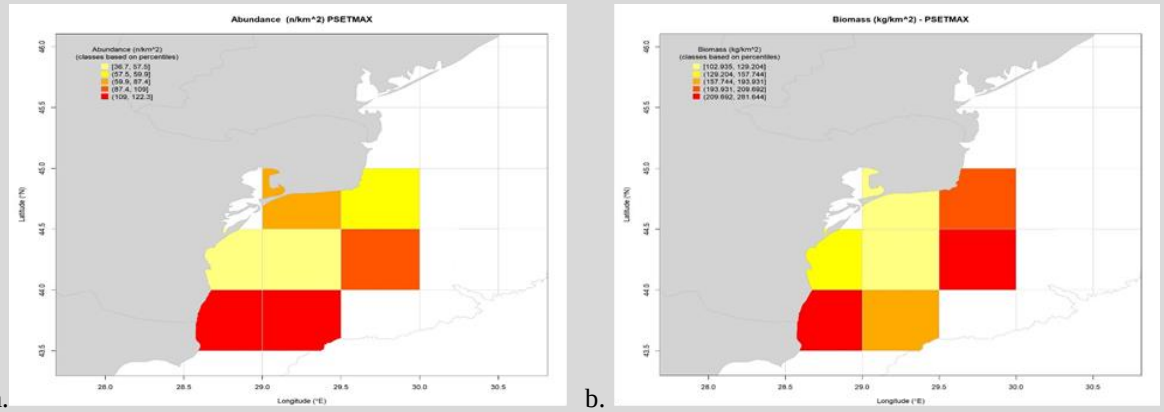


Fig. 1G26 Length frequency distribution combined for turbot in autumn season, in 2022



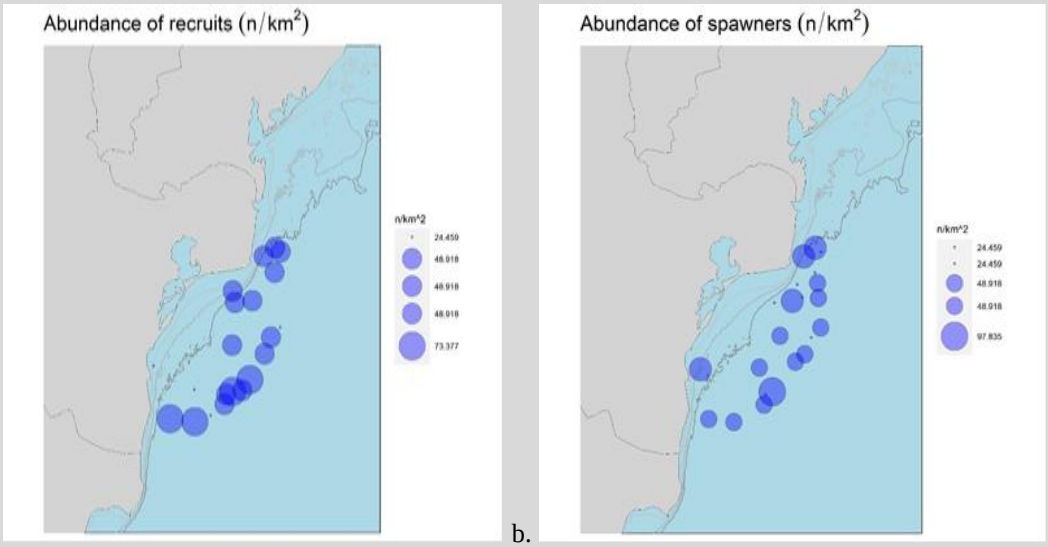
a. b.

Fig. 1G27 Length frequency distribution of female's (a) and male's (b) of turbot, in autumn season, in 2022



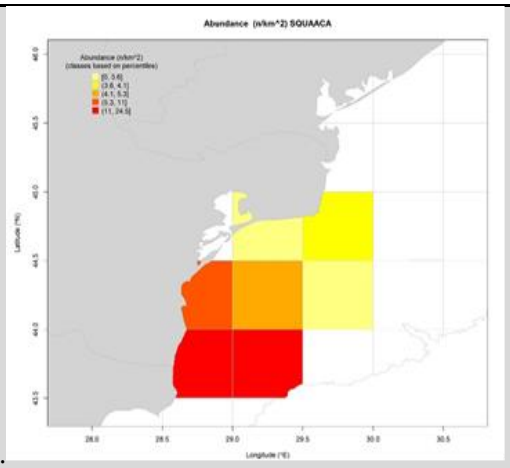
a. b.

Fig. 1G28 Spatial distribution of abundance (a/n/Km^2) and biomass (b/kg/Km^2) indices of the turbot, in autumn season 2022



a. b.

Fig. 1G29 Abundance of recruits (a; n/Km^2) and spawners (b; n/Km^2), of turbot, in autumn season in 2022

a. 

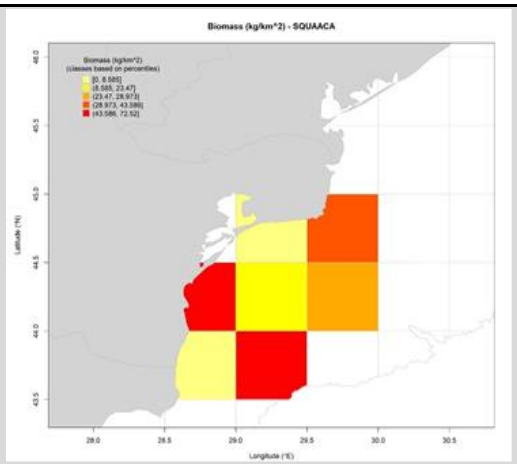
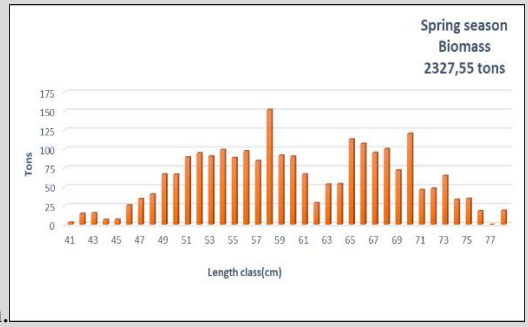
b. 

Fig. 1G30 Spatial distribution of abundance (a) and biomass (b) indices of the picked dogfish, in autumn season 2022

SPRING SEASON
Bottom Survey
Assessment of turbot agglomerations in spring season, demersal trawl survey, in Romanian area.
***turbot* / May – June 2022**

Depth range (m)	***0–30 m***	***30–50 m***	***50-70 m***	***Total***
Investigated area (Km^2)	**400**	**4100**	**5900**	**10400**
Variation of the catches (t/Km^2)	**0.000**	**0.0014-0.309**	**0.048-0.483**	**0.014-0.483**
Average catch (t/ Km^2)	**0.000**	**0.108**	**0.217**	**0.109**
Biomass of the fishing agglomerations (t)	**0.000**	**535.27**	**1611.54**	**2146.81**
Biomass extrapolated the Romanian shelf (t)				**2,327.55**

Biomass (tons) and abundance (individuals) of turbot

a. 

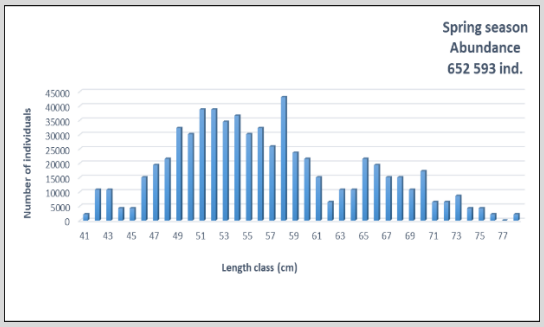
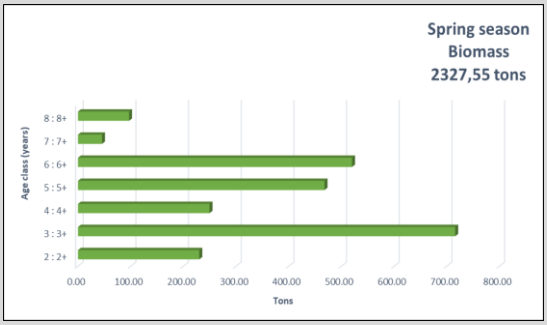
b. 

Fig. 1G31 Structure by lengths of biomass (a) and abundance (b) of turbot during spring survey

Structure of biomass and abundance by age distribution

a. 

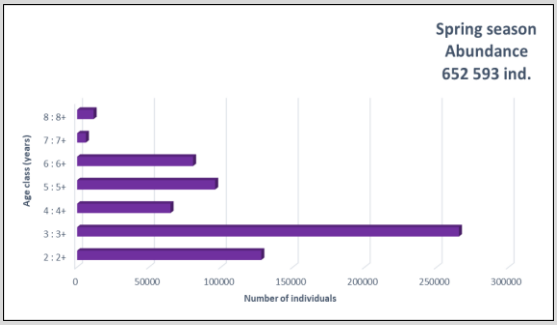
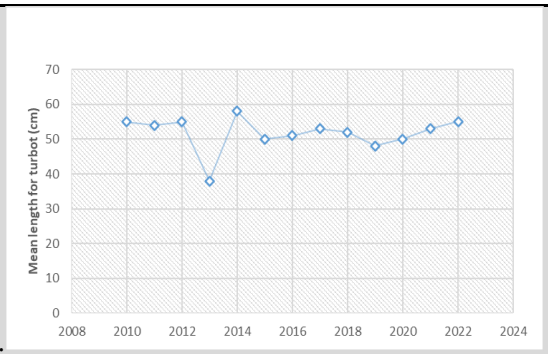
b. 

Fig. 1G32 Structure by ages of biomass (a) and abundance (b) of turbot during spring survey

a. 

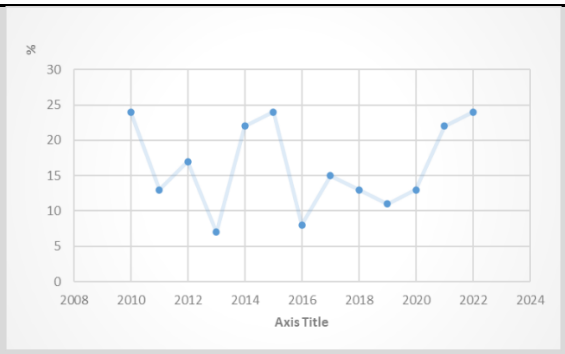
b. 

Fig. 1G33 The average length (a) and percentage (b) of turbot specimens larger than the average size at first sexual maturation in the period 2010 – 2022

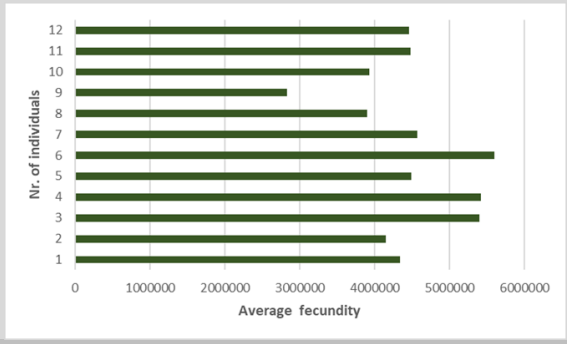
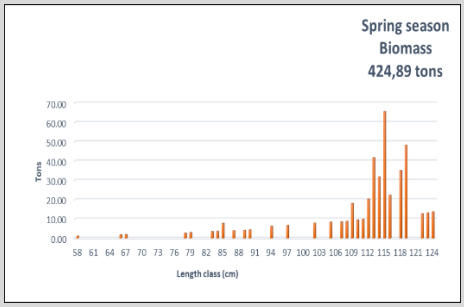


Fig. 1G34 The average values of absolute fecundity determined by turbot in 2022

Assessment of piked dogfish agglomerations in the demersal trawl expedition, in the spring season of 2022
Picked dogfish / May-June 2022

Depth range (m)	***0–30 m***	***30–50 m***	***50-70 m***	***Total***
Investigated area (Km^2)	**400**	**4100**	**5900**	**10400**
Variation of the catches (t/Km^2)	**0.000**	**0.000-0.184**	**0.000-0.290**	**0.000-0.290**
Average catch (t/ Km^2)	**0.000**	**0.032**	**0.022**	**0.018**
Biomass of the fishing agglomerations (t)	**0.000**	**162.66**	**169.36**	**332.02**
Biomass extrapolated the Romanian shelf (t)				**424,89**

Biomass (tons) and abundance (thousands of individuals) of picked dogfish

a. 

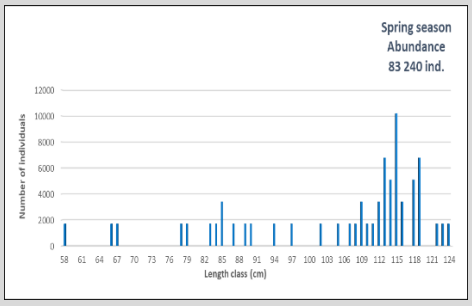
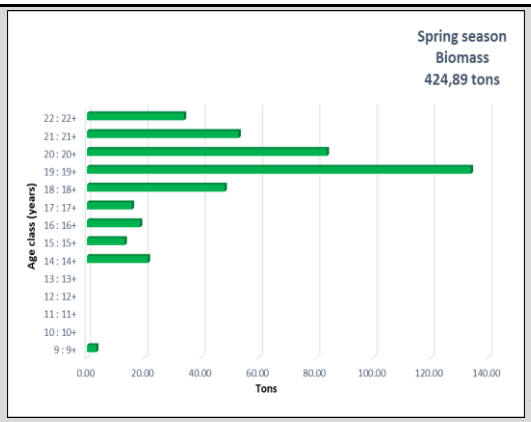
b. 

Fig. 1G.35 Structure by lengths of biomass (a) and abundance (b) of picked dogfish during spring demersal survey

Structure of biomass and abundance by age distribution

a. 

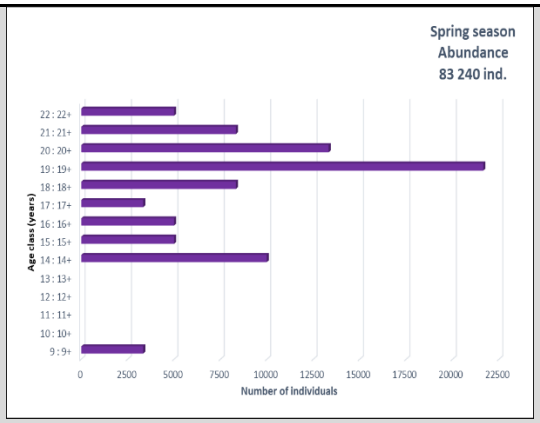
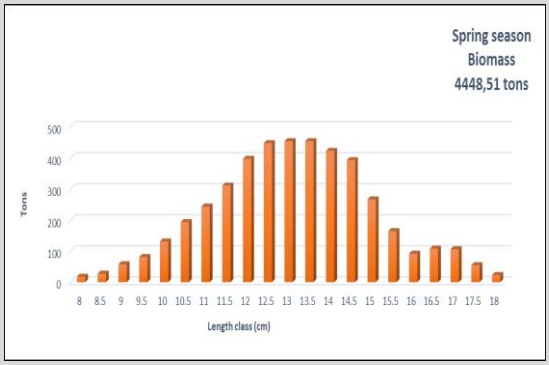
b. 

Fig. 1G.36 Structure by ages of biomass (a) and abundance (b) of picked dogfish during spring survey

Evaluation of whiting agglomerations in the demersal trawl expedition, in the spring season of 2022
Whiting / May-June 2022

Depth range (m)	***0–30 m***	***30–50 m***	***50-70 m***	***Total***
Investigated area (Km^2)	**400**	**4100**	**5900**	**10400**
Variation of the catches (t/Km^2)	**0.000**	**0.037-1.391**	**0.021-0.436**	**0.000-1.391**
Average catch (t/ Km^2)	**0.000**	**0.499**	**0.128**	**0.209**
Biomass of the fishing agglomerations (t)	**0.000**	**2460.29**	**946.29**	**3406.54**
Biomass extrapolated the Romanian shelf (t)				**4,448,51**

Biomass (tons) *and abundance* (individuals) *of whiting*

a. 

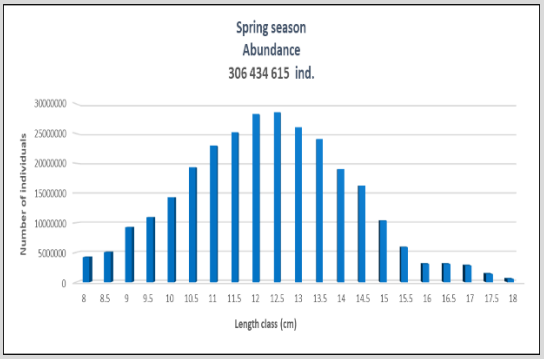
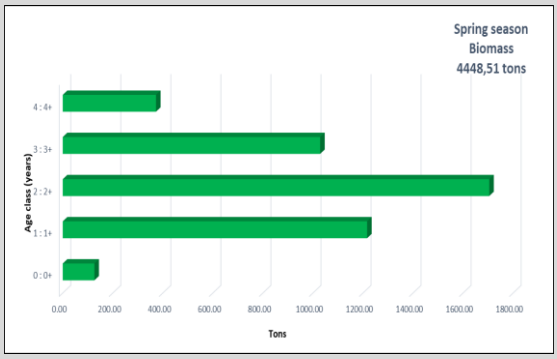
b. 

Fig. 1G37 Structure by lengths of biomass (a) and abundance (b) of whiting during spring demersal survey

Structure of biomass and abundance by age distribution

a. 

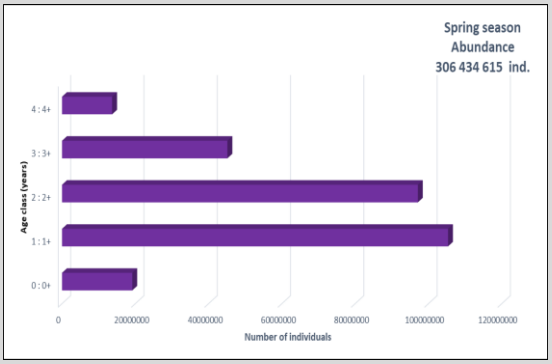
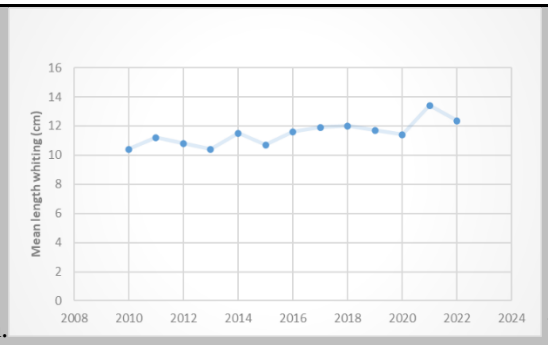
b. 

Fig. 1G38 Structure by ages of biomass (a) and abundance (b) of whiting during spring demersal survey

a. 

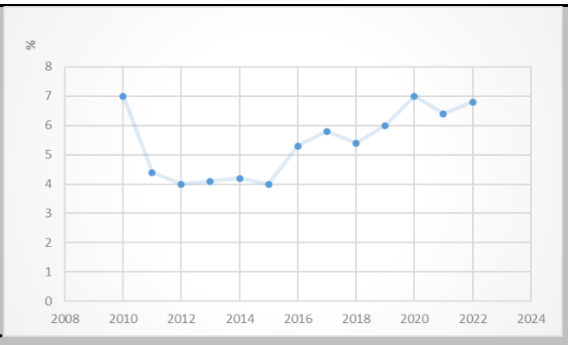
b. 

Fig. 1G39 The average length (a) and percentage (b) of whiting specimens larger than the average size at first sexual maturation in the period 2010 – 2022

AUTUMN SEASON

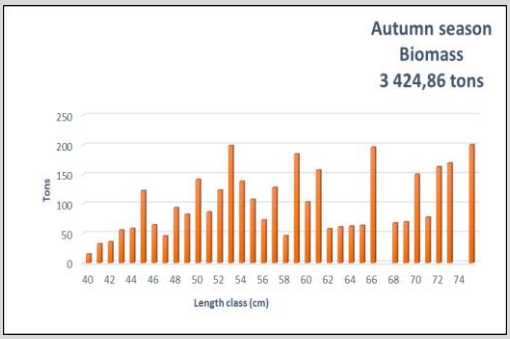
Demersal survey

Evaluation of turbot agglomerations in the demersal trawl expedition, in the autumn season of 2022

Turbot / October-November 2022

Depth range (m)	***0–30 m***	***30–50 m***	***50-70 m***	***Total***
Investigated area (Km^2)	**800**	**3900**	**4600**	**9300**
Variation of the catches (t/Km^2)	**0,0005-0.524**	**0.070-0.476**	**0.040-0.707**	**0.0005-0.707**
Average catch (t/ Km^2)	**0.109**	**0.153**	**0.216**	**0.159**
Biomass of the fishing agglomerations (t)	**268.39**	**755.71**	**1603.91**	**2628.01**
Biomass extrapolated the Romanian shelf (t)				**3,424.86**

Biomass (tons) and abundance (individuals) *of turbot*

a. 

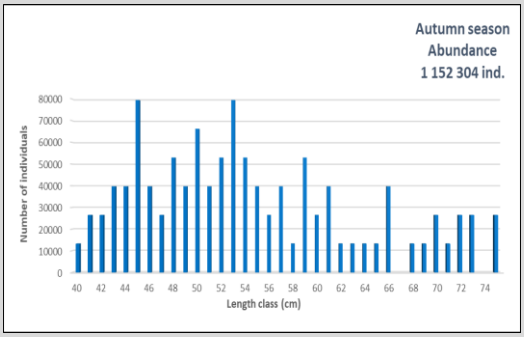
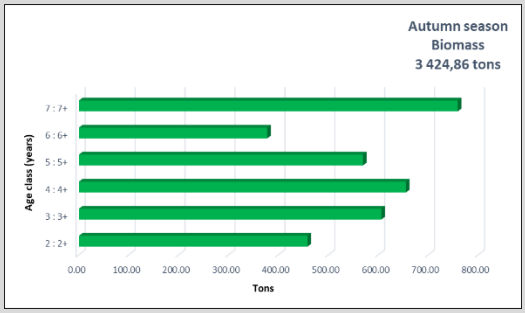
b. 

Fig. 1G37 Structure by lengths of biomass (a) and abundance (b) of turbot during autumn survey

Structure of biomass and abundance by age distribution

a. 

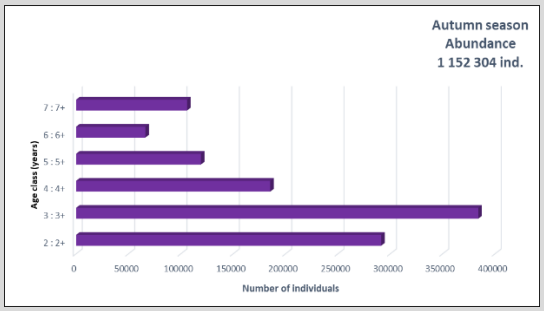
b. 

Fig. 1G40 Structure by ages of biomass (a) and abundance (b) of turbot during autumn survey

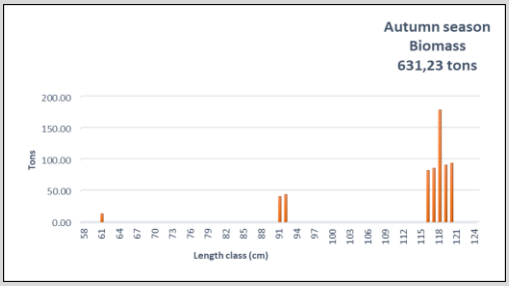
Evaluation of picked dogfish agglomerations in the demersal trawl expedition, in the autumn season of 2022

Picked dogfish / October-November 2022

Depth range (m)	**0–30 m**	**30–50 m**	**50-70 m**	**Total**
Investigated area (Km^2)	**800**	**3900**	**4600**	**9300**
Variation of the catches (t/Km^2)	**0.000 – 0.355**	**0.000-0.188**	**0.000-0.196**	**0.000-0.355**

Average catch (t/ Km^2)	**0.071**	**0.023**	**0.020**	**0.038**
Biomass of the fishing agglomerations (t)	**174.23**	**117.38**	**148.55**	**440.16**
Biomass extrapolated the Romanian shelf (t)				**631.23**

Biomass (tons) *and abundance* (individuals) *of picked dogfish*

a. 

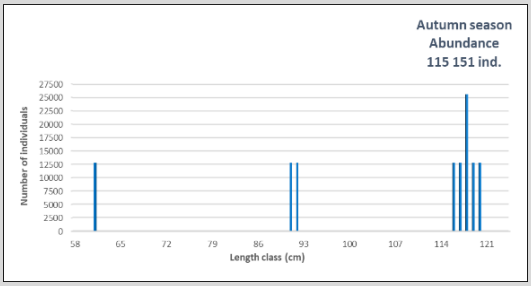
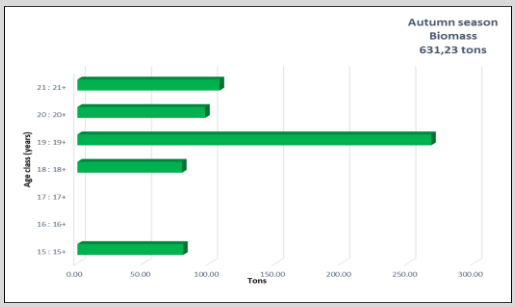
b. 

Fig. 1G41 Structure by lengths of biomass (a) and abundance (b) of picked dogfish during autumn survey

Structure of biomass and abundance by age distribution

a. 

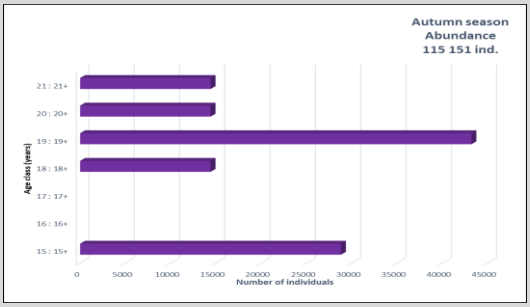
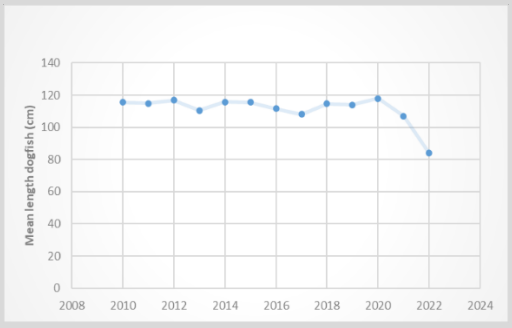
b. 

Fig. 1G.42 Structure by ages of biomass (a) and abundance (b) of picked dogfish during autumn survey

a. 

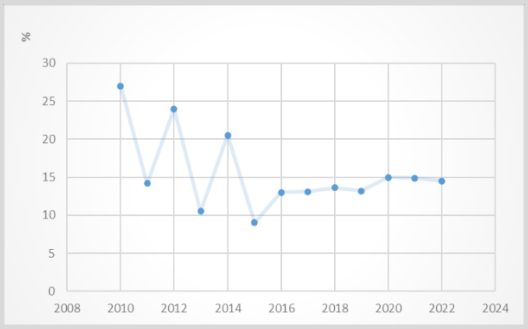
b. 

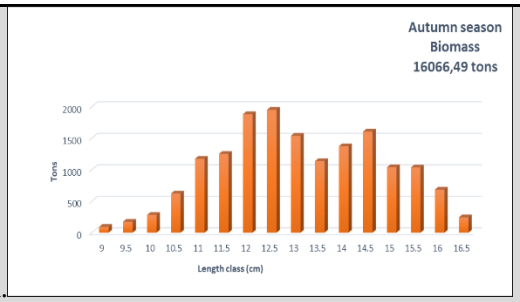
Fig. 1G43 The average length (a) and percentage (b) of picked dogfish specimens larger than the average size at first sexual maturation in the period 2010 – 2022

Evaluation of whiting agglomerations in the demersal trawl expedition, in the autumn season of 2022

Whiting / October-November 2022

Depth range (m)	***0–30 m***	***30–50 m***	***50-70 m***	***Total***
Investigated area (Km^2)	**800**	**3900**	**4600**	**9300**
Variation of the catches (t/Km^2)	**0.000-0.519**	**0.052-3.113**	**0.062-2.075**	**0.000-3.113**
Average catch (t/ Km^2)	**0.235**	**1.118**	**0.851**	**0.735**
Biomass of the fishing agglomerations (t)	**577.18**	**5516.95**	**6305.38**	**12399.51**
Biomass extrapolated the Romanian shelf (t)				**16,066.49**

Biomass (tons) *and abundance* (individuals) *of whiting*

a. 

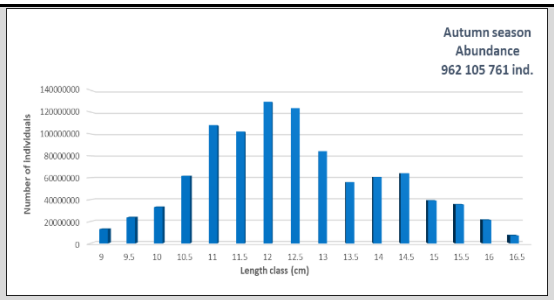
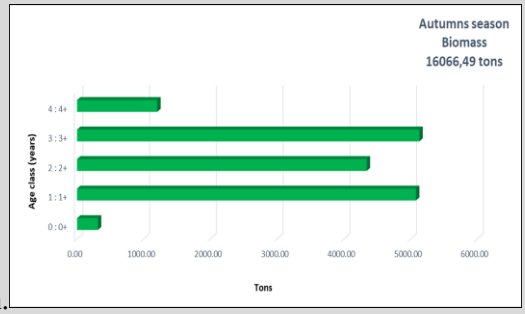
b. 

Fig. 1G44 Structure by lengths of biomass (a) and abundance (b) of whiting during autumn survey

Structure of biomass and abundance by age distribution

a. 

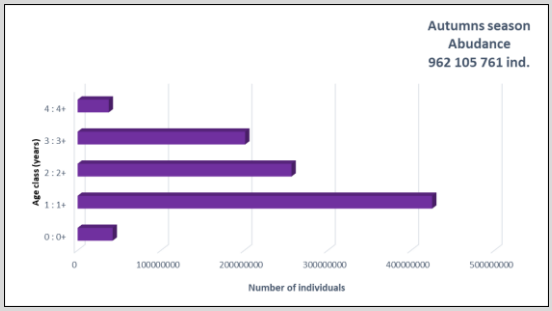
b. 

Fig. 1G45 Structure by ages of biomass (a) and abundance (b) of whiting during autumn survey

7. Extended comments

If the Member State has extended AR Comments, these can be placed under this section. If this is the case, a reference to this text box should be provided in the corresponding tables.

During the surveys at sea and at the fishing points along the Romanian Black Sea coast, in accordance with the activities provided in the National Program, information on incidental by-catch of birds, mammals, reptiles and fish were collected. Species striped red mullet / *Mullus surmuletus*, not present in Romanian area. Also, data on the presence of mammals in the area of the stationary and the active fishing gears and the presence of marine litter, both on land and at sea, were collected. All the collected data have been reported to the international bodies to which Romania has adhered or participated as a partner in the ongoing international projects. Thus, mammalian data were reported annually to ACCOBAMS (http://www.accobams.org/) and data on marine litter were uploaded to the EMOD-NET platform (https://www.emodnet-chemistry.eu/).

SECTION 4 : IMPACT OF FISHERIES ON MARINE BIOLOGICAL RESOURCES

Text Box 4.2: Incidental catches of sensitive species

Region: Black Sea

General Comment: This text box fulfils Article 5(2)(a) and (b), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004 and Chapter 2 point 4.1 of the EU-MAP Delegated Decision annex. This text box complements Table 2.5.
The information on incidental catches of sensitive species (Protected, Endangered and Threatened Species - PETs) will be collected on an annual basis by scientific observers onboard the commercial fishing vessels. The research survey is focused on data collection for the incidental catches of sensitive species by following types of fishing activities: * Pelagic species fishing with pelagic trawl; * Rapa whelk fishing with beam trawl; * Turbot fishing with gillnets;

The impact of commercial fishing on PETs will be assessed according to the bycatch rate, estimated for all observed fishing activities. For all types of fisheries, incidental by-catch of all birds, mammals and reptiles and fish protected under EU legislation and international agreements, including mainly the species listed, will be collected, such as:

* ***Bony fishes***: sturgeons (*Acipenser spp*.); beluga (*Huso huso*); Pontic shad (*Alosa immaculata*); Black Sea shad (*Alosa tanaica*); big-scale sand smelt (*Atherina pontica*); garfish (*Belone belone euxini*) gobies (*Gobiidae*); golden grey mullet (*Liza aurata*); mullet spp. (*Mugil* spp.); whiting (*Merlangius merlangus*); crayfish (*Astacus spp*.); bluefish (*Pomatomus saltatrix*) and mackerel (*Scomber colias Gmelin*).

* ***Cartilaginous fishes***: picked dogfish (*Squalus acanthias*); thornback ray (*Raja clavata*); stingray – (*Dasyatis pastinaca*).

* ***Mammals***: short-beaked common dolphin (*Delphinus delphis*); harbour porpoise (*Phocoena phocoena*) and bottlenose dolphins (*Tursiops truncatus*).

*** *Birds*:** common cormorant (*Phalacrocorax pygmaeus*); great cormorant (*Phalacrocorax carbo*); common pochard (*Aythya farina*) and dreat black (*Larus spp.*).

* ***Molluscs***: striped venus (*Chamelea gallina*); banded wedge shell (*Donacilla cornea*); Mediterranean mussel (*Mytilus galloprovincialis*) and rapa whelk (*Rapana venosa*).

* ***Crustaceans***: brown shrimp - *Crangon crangon*; rockpool prawn - *Palaemon elegans, and* rockpool prawn - *Palaemon elegans*.

Additional information on planning the observation of incidental catches of sensitive species (if already filled in Annex 1.1, please indicate where it can be found):

The scientific observations of the vessels of the Romanian fishing fleet will cover 75 fishing days (distributed according to the share of the types of fishing activity).

Has an assessment of the relative risk of bycatch for the different gear types/metiers taken place and been taken into account for the sampling design?

Yes.

The assessment was done at national level, since the RCGMed&BS 2021 has planned a workshop to agree at regional level the list of high-risk métiers on bycatch by group of sensitive species for 2022. After the workshop the planned list will be revised, if needed.

For the sampling design, the relative risk of bycatch for the different gear types/metiers has been taken into account. The vessels using beam trawls (TBB), pelagic trawls (OTM), gillnets (GNS).

The top priorities of the sampling will be:

* Document observations of PETs by different gear types/metiers;

* Document catch composition and size, with site specific details and specificity by different gear types /metiers;

* Document the amount and proportion of non-targeted species, and their fate/condition at release;

* Document bycatch rate by different gear types/metiers and fishing effort locations.

The data collected by scientific observers on board of the following types of fishing vessels: pelagic trawlers; beam trawlers and gillnets fishery, are based on the recommendations of FAO (2019 a, b) *:

1. *Data about the fishing vessels' activity*: fishing expedition data; departure port; arrival port; fishing vessel name; vessel type; vessel length (m);

2. *Fishing gears*: total number of fishing efforts per expedition, depth scale of the fishing activities;

3. *Basic biological data*: total catch weight (target catch + bycatch); target catch weight; weight of the bycatch of marine organisms (including PETs); length structure of catch and bycatch species (including PETs);

4. *Additional biological data*: total weight of the bycatch of industrial species; data about sex and age structure of the catches and bycatches (including PETs, if possible).

All gathered data will allow analysis and assessment of the relative risk of bycatch for the different gear types / metiers.

* FAO. 2019a. Monitoring discards in Mediterranean and Black Sea fisheries: Methodology for data collection. FAO Fisheries and Aquaculture Technical Paper No. 639. Rome. http://www.fao.org/3/ca4914en/ca4914en.pdf

FAO. 2019b. Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection. FAO Fisheries and Aquaculture Technical Paper No. 640. Rome, FAO, http://www.fao.org/3/ca4991en/CA4991EN.pdf

For the collected PETs, along with the species identification and biological parameters, additional information will be gathered about the condition of the animals (when possible):

Dead;

A0: Alive (swam away); conditions not determined;

A1: Alive and in good health condition;

A2: Alive; minor injuries/stressed high probability of survival;

A3: Alive; life threatening injuries/severe stress unlikely to survive.

What are the gear types/metiers that present the highest risk of bycatch per species/taxa of PETS in a given region?

* The main fishing technique on the Romanian coast (about 98% of the total fishing) it is beam traul. During the period 2017-2020, the incidence of accidental capture of *Scophthalmus maximus* / turbot (observed specimens / days) was estimated at - 0.166; *Dasyatis pastinaca* - 0.009 and *Acipenser stellatus* - 0.004;

* During the period analysed, the observers on board the vessels fishing with gillnets, the incidence of species *Acipenser stellatus* was 0.375; *Huso huso* - 0.125 and *Squalus acanthias* - 0.209.

* During the period 2017-2020, the observers on board the vessels did not record any specimen from the group of marine mammals, birds or reptiles, caught in the pelagic trawl, beam traul, gill nets and in the official statistics there are no catches discharged into the sea;

What methods are used to calculate the observation effort?

The final objective of a bycatch monitoring is to know the extent of the problem in each specific fishery, and then to be able to mitigate negative impacts on vulnerable species. For this reason, it is necessary to have an

estimate of the total number of individuals of vulnerable species caught by the fishing fleets.

We can compute the bycatch rate (T), per species and fleet segment, as:

$$T = \frac{N}{D}$$

From the bycatch rate, we can compute the estimation of individuals caught (I) by that fleet as:

$$I = T / F$$

We can also calculate some dispersion measures, such as standard deviation (SD) as:

$$SD = \frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n - 1}$$

Where n is the number of measurements for computing the mean (in this case, it would be the number of sampling methodologies used, as we compute the mean based on a value for each methodology).

Or we can also compute the standard error (SE) as:

$$SE = \frac{SD}{\sqrt{n}}$$ Where n as above.

Ideally, sampling fishing trips should be proportional to the fishing effort (number of fishing trips for fleet segments). Thus, the observation effort in the Romanian Black Sea, should consider the following basic information:

* Identified major fleet segments (4 major segments, appointed above)

* Total number of active fishing vessels in 2020 is 131, but 105 of them are from the small-scale fleet (under 12 m) with passive gears only.

* Annual fishing effort for the whole fleet is around 2,674 fishing trips, but 1,031 of them are generated by the small-scale fleet (under 12m) with passive gears only.

It is important to highlight the great role of small-scale fishing, with almost 80.2% of fishing vessels <12m long (most, unsuitable for scientific observations);

Typically, the scientific observation coverage should range from 2 percent to 7 percent (FAO, 2009; ACCOBAMS, 2010), although a minimum level of 0.5 percent is often accepted (FAO 2019 a, 20MARE/2014/19, 2016). A target of 0.5 percent is what might be achieved in some large fisheries monitored under the bycatch monitoring programmes carried out within Regulation (EC) No. 812/2004 (European Union, 2004; Northridge, Kingston and Thomas, 2015).

ACCOBAMS. 2010. Protocol for data collection on bycatch and depredation in the ACCOBAMS region. A standardised methodology for use in the collection of data on Cetacean bycatch and depredation of nets. ACCOBAMS-MOP4/2010/Doc22Rev1. Monaco, Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and contiguous Atlantic area. 38 pp.

FAO. 2009. Fishing operations. 2. Best practices to reduce incidental catch of seabirds in capture fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 1, Suppl. 2. Rome, FAO. 2009. 49 pp

FAO (2019a): Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries:

Methodology for data collection. FAO Fisheries and Aquaculture Technical Paper No. 640. Rome, FAO http://www.fao.org/3/ca4991en/CA4991EN.pdf

FAO (2019b): "Monitoring discards in Mediterranean and Black Sea fisheries: methodology for data collection",

MARE/2014/19. 2016. Strengthening regional cooperation in the area of fisheries data collection. Final report to the European Commission on the fishPi project, June. Brussels, Directorate-General for Maritime Affairs and Fisheries (MARE), European Commission.

Northridge, S., Kingston, A. & Thomas, L. 2015. Annual report on the implementation of Council Regulation (EC) No. 812/2004 during 2014. London, Department for Food, Environment and Rural Affairs (Defra). 41 pp.

The PSU is the fishing trip. The observation effort should be up to 0.5 % of the average number of fishing trips of the previous years in the sampling stratum.

Does the sampling design and protocol follow the recommendations from relevant expert groups? Provide appropriate references. If there are no relevant expert groups, the design and protocol have to be explained in the text.

Y

FAO (2019a): *Monitoring discards in Mediterranean and Black Sea fisheries: methodology for data collection,* http://www.fao.org/3/ca4914en/ca4914en.pdf and at

http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en

FAO (2019b): *Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection,* http://www.fao.org/3/ca4991en/CA4991EN.pdf and at

http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en

Additional information on observer protocols (if already filled in in Annex 1.1, indicate where it can be found):

The collected data includes the species composition, quantities, biological parameters and condition of the bycatches of PETS by different gears and metiers, as well as total catch of the target species, catches of other industrial species.

The dynamics of the main catches and bycatches of PETs quantities by months and/or seasons, or by sampling localities will be estimated. Infomation about the bycatch species composition (including PETs), PETs bycatch rate, size; sex and age structure (if possible).

Does the on-board observer protocol contain a check for rare specimens in the catch at opening of the cod-end? If YES, is the observer instructed to indicate if the cod-end was NOT checked in a haul? –

Yes

In gill nets and hook-and-line fisheries: does the on-board observer protocol instruct the observer to indicate how much of the hauling process has been observed for (large) incidental bycatches that slip out of the net?

Yes

- In large catches: does the protocol instruct the observer to check for rare specimens during sorting of the

catch (i.e. at the conveyor belt)? Is the observer instructed to indicate what percentage of the sorting or hauling process has been checked at "haul level"?

Yes

Additional information on sampling schemes

You may add specific contextual information related to a region and the implementation year(s), for instance highlighting new developments not yet detailed in the quality document, regional adaptation and/or perspectives for the future. Insert the information under the same sampling scheme identifier as in Table 2.5.

NA

Additional description on sampling frames

You may add a complementary description to what includes the 'Sampling frame description' column of Table 2.5. Insert the information under the same identifier and name as in the columns 'Sampling frame identifier' and 'Sampling frame description' of Table 2.5, and in the same order (Sampling frame identifier + Sampling frame description).

NA

Results

In 2022, 30 observation sheets were made by observers on board commercial vessels and by ship captains and 20 scientific fishing observation sheets. Marine mammals, sea turtles, seabirds and elasmobranchs are the four groups of marine fauna that have received particular attention in studies on the impact of fishing on vulnerable species (FAO, 2016). Thus, analyzing the data obtained for the study, the following vulnerable fish species were identified: *Dasyatis pastinaca* – stingray, FAO code: JDP *Raja clavata* – thornback ray, FAO code: RJC *Squalus acanthias* – picked dogfish, FAO code: DGS Regarding vulnerable species from the group of mammals and seabirds, we mention that no specimens were observed caught in fishing nets. However, observers on board commercial vessels recorded the presence of the following mammal species in the fishing activity area: *Phocoena phocoena relicta* – harbor porpoise, FAO code: PHR *Delphinus delphis ponticus* - common dolphin, FAO code: DCO *Tursiops truncatus ponticus* – afalin, FAO code: DBO.
All types of gear that are used on the Romanian coast were analyzed and the percentage of complementary species in the catches was calculated for the target species, then the by-catch rate was calculated (according to the FAO methodology, 2019) for the vulnerable species identified in the catches (Table 1).

Table 1. B*y-catch* rate for the species *Dasyatis pastinaca – JDP*

Fleet segment	**6-12 m**	**12-18 m**	**18-24 m**	**<24 m**
by-catch rate **(T)**		pelagic trawl (OTM)		
T	***0.06***	***0.91***	***0.09***	***0.75***
demersal trawl (OTB)				
T	**-**	-	**-**	***0.27***
turbot gillnets (TUR)				
T	***0.57***	***0.15***	**-**	**-**
Pontic shad gillnets(SHC)				
T	***0.04***	-	**-**	**-**
trapnet (FPN)				
T	***0.37***	**-**	**-**	**-**

As seen in table 1, the higher by-catch rate for the vulnerable species *Dasyatis pastinaca* (stingray) was recorded in the turbot seine fishery.

Tabelul 2. *By-catch* rate for *Raja clavata - RJC*

Fleet segment	**6-12 m**	**12-18 m**	**18-24 m**	**<24 m**
by-catch rate (T)		pelagic trawl (OTM)		
T	**-**	***0.08***	**-**	***0.33***
demersal trawl (OTB)				
T	**-**	-	**-**	***0.12***
turbot gillnets (TUR)				
T	***0.44***	***0.06***	**-**	**-**
Pontic shad gillnets(SHC)				
T	**-**	-	**-**	**-**
trapnet (FPN)				
T	***0.09***	-	**-**	**-**

Analyzing the information in the table above, the by-catch rate for the vulnerable species *Raja clavata* (thornback ray) was recorded in fishing with turbot gillnets.

Table 3. *By-catch* rate for *Squalus acanthias – DGS*

Fleet segment	**6-12 m**	**12-18 m**	**18-24 m**	**<24 m**
by-catch rate (T)		pelagic trawl (OTM)		
T	**-**	***0.01***	**-**	***0.36***
demersal trawl (OTB)				
T	**-**	-	**-**	***0.37***
turbot gillnets (TUR)				
T	***0.13***	***0.31***	**-**	**-**
Pontic shad gillnets(SHC)				
T	**-**	-	**-**	**-**
trapnet (FPN)				
T	**-**	-	**-**	**-**

According to the information in table 3, the by-catch rate for the vulnerable species *Squalus acanthias* (shark) was recorded in demersal trawl fishing.

It should be mentioned that the by-catch rate for any of the analyzed vulnerable species was below the value of 1. The captured vulnerable species were retrieved and analyzed; there were no specimens released back into the environment.

We also specify that no other vulnerable species belonging to other groups (marine mammals, seabirds) caught in fishing gear were identified. However, specimens of marine mammals and seabirds were observed in the activity area of the fishing vessels, most likely in search of food.

Regarding the method of information collection, we specify that the sampling from each category of data (dependent and independent of fishing) had a coverage of over 10%, according to the FAO guide, 2019.

Analyzing the ways to reduce accidental catches, the main ones are those that include improvements in the selectivity of fishing gear and reducing the impact of exploitation on aquatic resources.

Deviations from the work plan

There were no deviations from what was planned in the WP

Actions to avoid deviations

There were no deviations from what was planned in the WP

Text Box 4.3: Fisheries impact on marine habitats

General comment: This text box fulfils Article 5 paragraph 2(a) and 2(b), Article 6 paragraph 3(a), 3(b) and 3(c) of Regulation (EU) 2017/1004 and Chapter 2, section 4.2 of the EU MAP Delegated Decision annex. It contains information on additional studies on the fisheries impact on marine habitats.

1. Aim of the study

Although the entire aquatic environment is considered fish habitat, when referring to the impacts of fisheries on habitats, the focus is primarily on the seabed and associated structure-forming species (like mussels and seaweed, for instance). Fishing gear that makes contact with the seafloor has different levels of impact, depending on the gear type, the properties of the seafloor, the biodiversity living within or on the seabed, and the intensity and frequency of contact. These gears cause physical disruption of the seabed through contact of the gear components with the sediment and the resuspension of sediment into the water column in the turbulent wake of the gear (Depestele et al., 2015). They can reduce biodiversity and productivity of the habitats, particularly when used for the first time in a new area (Diesing et al., 2013). However, these gears can only be used on relatively soft seabeds, which means that only some suitable areas are exploited at the Romanian coast. Whereas bottom trawling is forbidden by Romanian legislation, only two highly-invasive gear types are used, namely the **beam-trawl and the hydraulic dredge** (Niță et al., 2021). In this context, the aim of this study is to collect the data necesary to assess the impact of the two gears on marine benthic habitats (according to the Natura 2000 classification, as per the Habitats Directive 92/43/EEC) (European Commission, 2007).

2. Duration of the study

The study is expected to cover three years, during 2022-2024, in order to build a comprehensive image of how Romanian marine habitats are affected by fisheries.

3. Methodology and expected outcomes of the study

The methodology used to quantify the impacts of fisheries on Romanian marine habitats will be the application of a BACI design (Before-After-Control-Impact), which is an effective method to evaluate natural and human-induced perturbations on ecological variables (Underwood, 1992). Research surveys at sea shall cover both the spring and autumn seasons. During the surveys, sediment samples shall be collected, before and after the gear has scraped the substrate, in order to identify the changes in benthic fauna abundance and structure. Moreover, visual observations by scuba divers (with video and photo documentation) shall be performed before, during and after **beam-trawling/dredging operations**, in order to document any potential changes in seabed bathymetry and any physical damages to the substrate and associated fauna and flora (if the case may be).

The expected outcomes of the study shall materialize in three yearly reports, namely:

Year 1 - Identification and characterization of Romanian marine benthic habitats potentially affected by fishing activities;

Year 2 - Description of invasive fishing gears and methods;

Year 3 - Quantitative and qualitative assessment of the impacts of beam trawling/hydraulic dredging on the seabed.

Brief description of the results (including deviations from the plan and justifications as to why if this was the case).

Identification and characterization of Romanian marine benthic habitats potentially affected by fishing activities

According to the Natura 2000 classification, the main types of habitats on the Romanian coast that can be affected by mobile fishing gears that come into contact with the seabed are the following (Micu et al., 2007; Zaharia et al., 2008; Teacă et al., 2020) (Fig. 1):

- **1110 Sandbanks which are slightly covered by sea water all the time** (with subtypes 1110-2 Hydraulic dunes of medium sands, 1110-4 Well-sorted sands, 1110-8 Sandy muds and muddy sands bioturbated by *Upogebia pussila*, 1110-9 Soft eutrophic muds dominated by polychaetes - *Nephthys, Melinna, Capitella*, 1110-10 Mixed sediments with diverse fauna);
- **1170 Reefs** (subtype 1170-2 *Mytilus galloprovincialis* biogenic reefs).

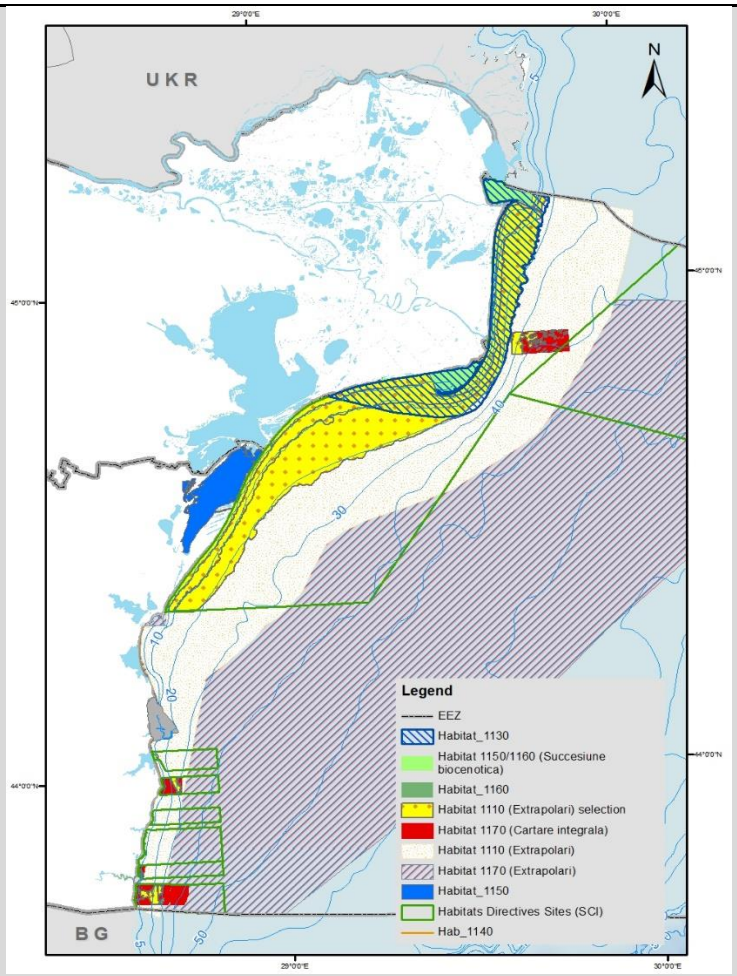


Fig. 1. Distribution of Natura 2000 habitats on the Romanian coast.

1110 SANDBANKS WHICH ARE SLIGHTLY COVERED BY SEA WATER ALL THE TIME

The habitat is represented by infralittoral and circalittoral sediment banks with medium granulometry, from fine sand to gravel, permanently submerged. The depth rarely exceeds 20 m, but in some cases it can exceed 50 m. Where hydrodynamism and the absence of light of light do not allow the development of vegetation, they are denudated. Areas more sheltered from waves, with clear water that allows good penetration of light, are covered with meadows made up of one or more species of seagrass: *Zostera noltii*, *Stuckenia pectinata*, *Zannichellia pedicellata*, *Ruppia maritima*. The habitat presents several subtypes harboring a large number of invertebrate species linked together by well-established trophic relationships. The populations of mollusks, polychaete worms, amphipod and decapod crustaceans can reach a high biological productivity here, achieving important biomasses. These are utilized as food by the fry of flatfish, sturgeons and other economically valuable fish species.

The habitat subtypes identified as potentially affected by fishing activities are:

- **1110-2 Hydraulic dunes of medium sands** - under the action of strong currents and waves, submerged banks (hydraulic dunes) parallel to the shore are formed. Through the accumulation of sand over time, these banks can become emergent, constituting moving islands or permanent sandbars (for example, Sahalin Island).
- **1110-4 Well-sorted sands** - located in the immediate continuity of shallow fine sands, from 5-6 m to 10-15 m deep; the substrate is made of sand with a finer and more homogeneous granulometry, much less affected by the agitation of the waves. The silt and clay content of the sediment increases with depth. This habitat shelters the community with *Lentidium mediterraneum* and *Mya arenaria*.
- **1110-8 Sandy muds and muddy sands bioturbated by *Upogebia pussila*** - the habitat forms a continuous belt along the Romanian coast, on the sandy banks between 10-30 meters deep. The habitat-forming species is the thalassinid decapod crustacean *Upogebia pusilla*, which feeds by filtering plankton and organic suspensions from the current of water that it continuously pumps

through its galleries. The substrate of the habitat is sifted by the very numerous galleries of *U. pusilla*, which penetrate to a depth of 0.2-1 meters, depending on the nature of the sediment. Usually, the populations of *U. pusilla* are very dense, being represented by 100-300 ex. m^{-2} and cover very large surfaces; biofiltration, bioturbation and sediment resuspension exerted by these crustaceans have a notable influence on the ecosystem. In the northern part of the coast, the density of the leading species is lower (8 - 100 ex.m^{-2}) than in the south of the Romanian littoral (Teacă et al., 2020). The accompanying species are the bivalves *Mya arenaria, Anadara kagoshimensis, Abra nitida*, among polychaetes *Nephtys hombergi*, *Allita succinea, Prionospio maciolekae*. The density of bivalve mollusks is reduced in this habitat, due to competition for food and predation of planktonic larvae and postlarvae by *Upogebia*. Other species, especially commensals that live in *Upogebia* galleries, are facilitated (Teacă et al., 2020).

- **1110-9 Soft eutrophic muds dominated by polychaetes - *Nephthys, Melinna, Capitella*** - the substrate of this habitat consists of terrigenous muds, rich in detritus and organic matter, which harbor a fauna dominated by polychaetes (*Melinna palmata, Heteromastus filiformis, Polydora cornuta, Streblospio gynobranchiata, Nephthys hombergii*) and oligochtes (Fig. 2). The density of the habitat-forming species *Melinna palmata* varies, in the northern part of the coast, from 224 ind. m^{-2} to 14,000 ind. m^{-2} (Teacă et al., 2020). Accompanying species, such as bivalve mollusks, have a constant presence in this habitat and are either endobenthic species with long siphons (*Abra nitida*) or endobenthic species with short siphons, but with a high volume/mass ratio, which helps them not to sink into the soft sediment (*Acanthocardia paucicostata, Parvicardium exiguum, Cerastoderma glaucum, Spisula subtruncata*). Episodically, large abundances of *Mytilus galloprovincialis* juveniles are recorded in this habitat, which attach to the tubes of the *Melinna* polychaete, but do not survive long enough to exceed 30-40 mm in length. Among crustaceans, the most common species are *Amphibalanus improvisus, Phtisica marina* and *Iphinoe elisae*. The analysis of the distribution of the biomass values recorded by the macrozoobenthic populations within the *Melinna palmata* habitat highlighted that, in the area of maximum influence of the Danube, the highest biomass values were found, due to the favorable conditions for the development of opportunistic organisms (for example, the large bivalve A. *paucicostata*, the polychaete *M. palmata*). These species, having at their disposal an abundant trophic resource in the form of particulate organic matter and in the absence of competition from other species, develop massively, reaching very high biomasses (Teacă et al., 2020).

Fig. 2. Habitat 1110-9: Soft eutrophic muds dominated by polychaetes *(source Teacă et al., 2020)*.

- **1110-10 Mixed sediments with diverse fauna** - the substrate of this habitat consists of mixed sediments, predominantly sandy. The fauna is varied and consists of bivalve mollukcs such as *Pitar rudis, Polititapes aureus, Spisula subtruncata, Papilicardium papilosum*, polychaetes (*Dipolydora quadrilobata, Leiochone leiopygos, Lagis koreni, Terebelides stroemi*), crustaceans (*Microdeutopus*

anomalus, Phtisica marina, Caprella acanthifera, Iphinoe elisae) and others. The recorded densities by the macrozoobenthic fauna vary from 1,200 ex. m^{-2} to 4,500 ex. m^{-2} (Teaca et al., 2020).

1170 REEFS (subtype **1170-2 *Mytilus galloprovincialis* biogenic reefs**).
Mussel reefs appear on sedimentary substrate, mud, sand, silt or mixture, most frequently between the 30 and 60 m isobaths. The reefs are made up of mussel beds whose shells have accumulated over time, forming a hard substrate higher compared to the surrounding sediments, mud, sand, silt or mixture, on which mussel colonies live (Fig. 3). Among the sedimentary substrate habitats of the Black Sea, it harbors the greatest specific diversity due to its extension over a wide range of depths and due to the multitude of microhabitats in the mussel reef matrix, which provide living conditions for a great diversity of species. In addition to the leading species - *Mytilus galloprovincialis*, we encounter the polychaete *Dipolydora quadrilobata* in significant densities (Teacă et al., 2020).
This type of reef is unique due to the crucial ecological role of mussel banks in the self-purification of the ecosystem and the achievement of the benthic-pelagic coupling, due to the existence here of several threatened species, due to its socio-economic importance as a habitat and fishing area for many valuable commercial species (*Scophthalmus maeoticus*, *Squalus acanthias*, Acipenseridae, Gobiidae, *Rapana venosa*). Mussels themselves are the most consumed species of mollusk by the peoples around the Black Sea, and mussel beds are a source of larvae for aquaculture.

Fig. 3. Habitat 1170-2 *Mytilus galloprovincialis* biogenic reefs *(source Teacă et al., 2020)*.

Deep-sea mussels form a belt around the Black Sea on the continental shelf, between the isobaths of 25 ÷ 70 m depth (it is the only place where mussel associations on muddy bottoms have been described). The presence of mussels on the muddy bottom of the Black Sea is one of the basic characteristics of this basin. Mussels live in these muddy areas in "clusters" made up of a few specimens attached with the byssus between them and the substrate (shell fragments), which form real "condensation" nuclei. Isolated specimens are very rarely found. Epibiosis fixed on deep-sea mussels is generally poor, and foreign bodies between the valves occur in a small percentage (Băcescu et al., 1971).
These deep-sea mussels have more rounded valves, also presenting some physiological differences compared to the mussels that populate rocky areas: due to the special environmental conditions, they spawn only once a year compared to mussels on rocky substrates, which spawn twice (Skolka, 2003).
Deep-water mussel clusters have a particularly important ecological role on soft substrate, as they provide a hard surface in muddy areas. This attracts and supports a greater range of marine organisms, including algae, anemones, other mollusks, crustaceans, echinoderms and polychaetes (Teacă et al., 2020).
All these features point to this habitat type as a potential Vulnerable Marine Ecosystem (VME) in the north-western part of the Black Sea, given that it largely meets the VME criteria as defined in the "Guide for the Management of Deep-sea Fisheries in the Open Sea", fulfilling most of the indicated criteria: uniqueness or rarity; functional significance of the habitat; structural complexity (FAO, 2009). Macrobenthic invertebrates (including mollusks) contribute to the formation of structured habitats that constitute the so-called Vulnerable

Marine Ecosystems (VMEs) (FAO, 2016).
Prior to 1965, this type of habitat covered almost the entire north-western shelf of the Black Sea, between 20-60 m depth, where the substrate was suitable. The mussel population, and consequently the extent of this habitat, has suffered a major reduction (by more than 50%), primarily due to the effects of eutrophication (Shurova & Zolotarev, 2007) and more recently due to invasive fishing techniques (with beam trawl and hydraulic dredge). In the last 10 years, the sedimentary areas of the northwestern Black Sea have become targets for beam trawl fishing for the invasive gastropod *Rapana venosa* (Valenciennes, 1846), with a potentially destructive impact. In 2013, the use of the beam trawl for the industrial exploitation of *Rapana* was legalized in Romania, and, since then, this fishing gear has been widely used in the central and northern areas of the Romanian coast, on sandy and silty substrate (Danilov et al., 2019).

CONCLUSIONS
Habitats on soft substrate (sand and silt) are most prone to structural and functional changes following the use of invasive fishing gears and techniques (beam trawl and hydraulic dredge). They can affect benthic communities and cause effects on sediment suspension and seabed biogeochemistry, also modifying the structure of biocenoses.
On the Romanian coast we have identified two major Natura 2000 habitats potentially affected by fishing activities, namely **1110 Sandbanks which are slightly covered by sea water all the time** (with the subtypes 1110-2 Hydraulic dunes of medium sands, 1110-4 Well-sorted sands, 1110-8 Sandy muds and muddy sands bioturbated by *Upogebia pussila*, 1110-9 Soft eutrophic muds dominated by polychaetes, 1110-10 Mixed sediments with diverse fauna) and **1170 Reefs** (subtype 1170-2 *Mytilus galloprovincialis* biogenic reefs).

Follow-up to the activities (what are the next steps, how the results will be used).
In order to estimate as truthfully as possible, the impact of fishing on the habitats on the Romanian coast, in the following stages of the study (years 2 and 3) the documentation of invasive fishing methods and gears will be carried out and the quantitative and qualitative assessment of their impact on the substrate, respectively.

SECTION 5 : ECONOMIC AND SOCIAL DATA IN FISHERIES

Text Box 5.2: Economic and social variables for fisheries data collection

General comment: This Text box fulfils Article 5(2)(d), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 5 of the EU MAP Delegated Decision annex. It is intended to specify data to be collected under Tables 7, 8 and 9 of the EU MAP Delegated Decision annexes.

1. Description of clustering

The data collection scheme used in Romania is Census and the data is collected from each vessel. Clusters are not used for data collection purposes, but for the reporting of economic and social data from segments with less than 5 vessels.

Clustered Segments:

***Drift and/or fixed netters* 06-< 12 m**

This fleet segment is composed of Drift and/or fixed netters 6-< 12 m (59 vessels).

**** Drift and/or fixed netters* 12-< 18 m***

This Cluster is composed of the segments Drift and/or fixed netters 18-< 24 m (1 vessels), 24-< 40 m (4 vessels), which is with less than 5 vessels, which are with less than 5 vessels, and the segment Drift and/or

fixed netters 12-< 18 m (20 vessels). These fleet segments only differ in the length class.

**** Vessels using Pots and/or traps* 06-< 12 m***

This Cluster is composed of the segment vessels using Pots and/or traps 0-< 6 m (3 vessels), which is with less than 5 vessels, and the segment vessels using Pots and/or traps 6-< 12 m (24 vessels). These fleet segments only differ in the length class

* ***Vessels using hooks 06-< 12 m****

This Cluster is composed of the segment vessels using hooks 0-< 6 m (1 vessel), which is with less than 5 vessels, and the segment vessels using hooks 6-< 12 m (32 vessels). These fleet segments only differ in the length class.

* ***Vessels using active and passive gears 12-< 18 m****

This Cluster is composed of the segment vessels using active and passive gears 18-< 24 m (1 vessels), 24-< 40 m (4 vessels) which is with less than 5 vessels, and the segment vessels using active and passive gears 12-< 18 m (20 vessels). These fleet segments only differ in the length class.

* ***Vessels using beam trawls 12-< 18 m****

This Cluster is composed of the segment vessels using beam trawls 18-< 24 m (1 vessels), 24-< 40 m (4 vessels), which is with less than 5 vessels, and the segment vessels using beam trawls 12-< 18 m (20 vessels). These fleet segments only differ in the length class.

**** Pelagic trawlers 12-< 18 m****

This Cluster is composed of the segment's pelagic trawlers 24-< 40 m (1 vessel); 18-< 24 m (1 vessel), pelagic trawlers 6-< 12 m (1 vessel), which are with less than 5 vessels, and the segment pelagic trawlers 12-< 18 m (8 vessels). These fleet segments are clustered because of similar fishing techniques and similar length classes.

* ***Inactive vessels 06-< 12 m****

This Cluster is composed of the segment inactive vessels 0-< 6 m (4 vessel) and the segment inactive vessels 6-< 12 m (38 vessels). These fleet segments only differ in the length class.

Description of clustering

The data collection scheme used in Romania is Census and the data is collected from each vessel. Clusters are not used for data collection purposes, but for the reporting of economic and social data from segments with less than 5 vessels.

The clustering is based on the aggregation of segments with a fishing technique similar to other segments.

2. Description of activity indicator

NA

The activity indicator to divide the fleet segment into different activity levels is not used in Romania.

3. Deviation from the RCG ECON (ex. PGECON) definitions

NA.
No deviation from RCG ECON definitions.

According to the *GUIDANCE DOCUMENT FOR THE FISHING FLEET* Living document, last updated by PGECON 2020. Alternative methods based on company surveys are allowed for the variables Consumption of physical capital and Value of physical capital. Both variables, Consumption of fixed capital and Value of physical capital are collected through the annual questionnaire as the other economic variables, instead of estimating them by applying the perpetual inventory method (PIM). The reason is that the values derived by the application of PIM were not realistic for the Romanian fleet and since the data collection is covering all the vessels (Census) and each owner is providing the most accurate data regarding the specific vessel, at national level was taken a decision of using the realistic values reported by the owners, instead of the estimated theoretical numbers.

Deviations from the work plan
There are no deviations from the work plan.

Actions to avoid deviations
NA.

SECTION 6 : ECONOMIC AND SOCIAL DATA IN AQUACULTURE

Text Box 6.1: Economic and social variables for aquaculture data collection

General comment: This text box fulfils Article 5(2)(e), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 6 of the EU MAP Delegated Decision annex. It is intended to specify data to be collected under Tables 10 and 11 of the EU MAP Delegated Decision annex.

1. Description of the threshold application

Data collection of economic and social variables for the aquaculture sector will respect the provision of Commission Delegated Decision (EU) 2021/1167, Annex: - Table 9 – for social variables in aquaculture sector, common variables with fishing activities; - Table 10 – economic variables and Table 11 – segmentation to be applied for the collection of aquaculture data. The production of aquaculture sector of Romania in 2019, as per the last figures reported to Eurostat represents less than 1,15 % from total EU production. No thresholds are applicable due to the fact the method to be used is exhaustive one, type – census. The method is explained in the Annex 1.2 – report for socioeconomic sampling and method. No thresholds will be apply considering the tables listed on the Annex of EU Delegated Decision 2021/1167 for economic and social variables. **The method used exhaustive, type - census will ensure a coverage rate of 100% of total population.**
The methodology is documented and made public by accessing the link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/ROU_Description_of_the_socio-economic_data_collection_methodology_of_the_aquaculture.pdf (*Ctrl + Click on indicated link*)
and
https://asas-icdeapa.ro/proj/Procedura-Manual-EN.pdf (*Ctrl + Click on indicated link*).
Applying exhaustive method for aquaculture data collection, the variables will be collected are the same, as content using the definitions mentioned in the EU MAP Guidance document on DCF website. This method and content of variables are similar used in the previous work program and no changes are foreseen in the programming period 2022-2024. This will ensure the comparability of collected data over the time period starting under data collection activities.

2. Deviation from the RCG ECON (ex. PGECON) definitions

No deviations from the RCG ECON (ex. PGECON) definitions.

Deviations from the work plan

There are no deviations from the methodology, of the plan work to collect aquaculture data, used to select the data source.
Data collection was performed by regions and based on the number of employees for each unit. There are no deviations in the work plan regarding the sample framework and the allocation scheme.
Data collection was performed by region and function of the crop species and the breeding system.
Data collection was performed by regions and based on the number of employees for each unit. There are no deviations in the work plan regarding the sample framework and the allocation scheme.
Data collection was performed by region and function of the crop species and the breeding system.

Actions to avoid deviations

There are no deviations from the workplan.

SECTION 7 : ECONOMIC AND SOCIAL DATA IN FISH PROCESSING

Text Box 7.1: Economic and social variables for fish processing data collection

General comment: This text box fulfils Article 5(2)(f), Article 6(3)(a), (b) and (c) of Regulation (EU) 2017/1004, and Chapter II point 7 of the EU MAP Delegated Decision annex.

Socio-economic data will be collected annually, with the support of NAFA, from all economic operators identified as having their main and secondary activity - Processing and preserving of fish, crustaceans and molluscs, according to NACE 1020. The method of data collection is exhaustive, namely - census, the questionnaires being distributed to all companies active in the time period 2022-2024. The collection method ensures a 100% coverage of the population.
The source of the ssocio-economic data for the processing segment is the questionnaire.
The telephone or personal interview at the unit's headquarters has the role of verifying data correctness and their correlation.
Interviews are conducted at processing economic units assigned to the NAFA regional branches: Moldova, Muntenia, Oltenia, Transylvania, and the Maritime Directorate - Constanța Department, as well as the Danube Delta Inspection Service.
If the companies will not allow access to this information or if data is incomplete, figures registered and declared to the authorities of the fiscal body will be used, respectively the website of the Ministry of Public Finance (information from the balance report of economic agents)
The method of data collection is exhaustive, namely the census, the questionnaires being distributed to all companies active in the current monitored year. The collection method ensures a 100% coverage of the population.
If there are any ambiguities regarding economic or production indicators, the data providers (accountants or administrators of the economic agents) are contacted in order to make clarifications or corrections if necessary.
A potential error is the number of units carrying out processing activity in the assessed year. To eliminate this error, the fish processing units are identified and verified through the NAFA.
Data collection from the processing follows the established methodologies by a group of experts.
The methodology is documented and made public by accessing the link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/ROU_Description_of_the_socio-economic_data_collection_methodology_of_the_processing.pdf (*Ctrl + Click on indicated link*)
and
https://asas-icdeapa.ro/proj/Procedura-Manual-EN.pdf (*Ctrl + Click on indicated link*).
The working methodology is revised as often as necessary in accordance with the regulation requirements for the current year and for its improvement.
Management and use of data complies with Regulation 2017/1004 – repealing Regulation 199/2008 (art. 17-20) regarding the sending and availability of data.

Deviations from the work plan

There are no deviations from the methodology of the work plan for data collection in processing 2021-2022 used to select the data source**.**

There are no deviations from the methodology of the work plan for data collection in processing 2021-2022, used to select the data source.

Data collection was performed by regions and based on the number of employees for each unit. There are no deviations in the work plan regarding the sample framework and the allocation scheme.

Actions to avoid deviations

There are no deviations from the workplan.

ANNEX 1.1 - QUALITY REPORT FOR BIOLOGICAL DATA SAMPLING SCHEME

The quality report fulfils Article 6(3)(d) of Regulation (EU) 2017/1004. This document is intended to specify data to be collected under Chapter II, point 2 of the EU MAP Delegated Decision annexes: 'Biological data on exploited biological resources caught by Union commercial and recreational fisheries. Use this annex to state whether documentation in the data collection process (design, sampling implementation, data capture, data storage, sample storage and data processing) exists and identify where this documentation can be found. Names of sampling schemes and strata shall be identical to those in Tables 2.2, 2.3, 2.4, 2.5, 2.6 and 4.1 of the WP/AR. For quality information on scientific surveys, use the survey acronym as a sampling scheme identifier. For mandatory surveys, refer to Table 1 of the EU MAP Implementing Decision annex, see also MasterCodeList 'Mandatory survey at sea'.

SciObsOnShore *Commercial fishing trip*Selected species/stocks

MS: ROMANIA (ROU)
Region: Mediterranean and Black Sea
Sampling scheme identifier: *SciObsOnShore* *Commercial fishing trip*Selected species/stocks
Sampling scheme type: Commercial fishing trip
Observation type: *SciObsOnShore*
Time period of validity: from 2022 until 2024
Short description (max 100 words): *e.g. sampling scheme aiming to collect length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French, Portuguese, and Spanish).* The sampling scheme aiming to collect the following information from commercial landings at national ports: - length, weight, sex, age, maturity and fecundity for *Sprattus sprattus, Mullus barbatus, Trachurus mediterraneus, Engrauslis encrasicolus, Merlangus merlangius* from vessels using OTM, targeting pelagic species; - length, weight, sex, age, maturity, fecundity of *Scophthalmus maximus* collected from vessels using GNS for turbot fisheries in GSA 29, which are landing at officially designated ports for turbot; - sampling for the stomach, for the species turbot (*Scophthalmus maximus*), sprat (Spratus spratus) and horse mackerel (*Trachurus mediterraneus*); - biological sampling resulting from recreational fishing (length, weight, sex) - length, weight, sex and maturity for *Squalus acanthias* from vessels using LLS and/or LLD; - length, weight and sex for *rapa whelk* from vessels using TBB. The scheme covers Romanian landings at national ports (Cape Midia and Constanta) and fishing points (Vama Veche, 2 Mai, Mangalia, Costinesti, Eforie, Agigea, Cape Midia sud, Cape Midia South Cape, Midia North and Vadu.
Description of the population
Population targeted: *Specify which are the primary sampling units (PSUs), e.g. all national port *days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area*.

The primary sampling units are commercial fishing trips. The samples for the analysis will be collected directly from the Romanian landing ports. The sampling will remain the same as in previous years – it will be done by purchasing samples at the time of landings at the ports.
The target population consists of fishing trips of vessels using pelagic trawls, vessels using beam trawls, vessels using longlines, vessels with set gillnets for turbot and boats using pound nets [FPN] for sampled will be sprat, anchovy, red mullet and horse mackerel, and the secondary catches (by-catch) were: Pontic shad, Azov shad, red mullet, turbot, big-scale sand smelt, garfish, gobies, picked dogfish, common stingray, thornback ray, sea sole.

Population sampled: Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason, *e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends.* For research surveys at sea describe target species in single-species surveys or ecosystem component *(e.g. demersal, pelagic)* in multispecies surveys.

All parts of the target population have the same chance to be sampled and there are no parts of the target population, which are unreachable for sampling or excluded for some reason.
The samples collection will be carried out monthly.
The method of PSU selection will be simple random sampling without replacement (SRSWOR)
http://home.iitk.ac.in/~shalab/sampling/chapter2-sampling-simple-random-sampling.pdf

Stratification: Explain the logic taken to stratify the population and the number of strata generated, *e.g. population stratified in three geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.*

There is no specific geographical stratification since the PSU is a commercial fishing trip.

AR comment: No deviations.

Sampling design and protocols

Sampling design description: *Describe how the sampling allocation is defined; how PSUs and SSUs are selected for sampling; indicate for which catch fraction the sampling scheme applies*.

To ensure that the data collected provides representative information, samples from the planned species are collected from landing ports of the Romanian Black Sea coast (Cape Midia and Constanta). Each fishing vessel, which is landing at the port during the day in which the data collector is there has an equal and independent probability of being observed. The sampling scheme applies for catch fraction based on Landings (all). The method of PSU selection is simple random sampling with replacement (SRSWR).

The minimum number of full stomachs of turbot which is planned (according to numbers of specimens with full stomachs during the historical biological monitoring of turbot) is 20 in the 2nd quarter and 15 in the 4th quarter. If more full stomachs are available from the purchased samples, they will be analysed.
The main reference documents are: Deliverable D4.1 from STREAM
Methodologies for the biological sampling in the Romanian Black Sea areaBoth documents are available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection-methodologies

Is the sampling design compliant with the 4S principle? Y*/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)*

Y

Regional coordination:

The sampling design and protocols were not developed as part of a regional or multi-lateral agreement, but according to the agreement between Romania and Bulgaria, both countries will undertake annually biological monitoring in their territorial waters and EEZ under their jurisdiction, following common methodology and harmonization of biological data sampling. The agreement is available at the following link: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - New Agreement_(*Ctrl + Click on indicated link*).

Link to sampling design documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide some details in the textbox.

The sampling design documentation is available on the following link:

http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection-methodologies (*Ctrl + Click on indicated link*).
Report of the Workshop on Sampling and Calculation Methodology for Fisheries Data" (WKSCMFD) (ICES 2004); https://www.ices.dk/sites/pub/CM%20Doccuments/2004/ACFM/ACFM1204.pdf;
Report SGPIDS (ICES, 2011a), https://www.ices.dk/community/Documents/PGCCDBS/SGPIDS%202011. pdf;
Report of the Study Group on Practical Implementation of Discard Samples (SGPIDS).2013, https: //www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2013/SGPIDS/SGPIDS13.1.pdf

Compliance with international recommendations: Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text, and should be available upon request for the evaluators.

Y.

The sampling design is in line with international recommendations. Romania complies with and implements all international recommendations (RCG and GFCM).

Link to sampling protocol documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details of the sampling protocol in this textbox.*

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection-methodologies (*Ctrl + Click on indicated link*).
Compliance with international recommendations: Enter 'Y' (yes) if the sampling protocol is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling protocol should be shortly explained in the text, and should be available upon request for the evaluators.

Y

Romania complies with and implements all international recommendations (JRC, RCG, GFCM and STECF).

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: *Indicate 'Y' (yes), 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available.*

Y

The refusal rate should be recorded, but it is not likely to happen because scientists are buying the samples

Monitoring of sampling progress within the sampling year: *Indicate how sampling allocations are adjusted (if needed) and followed-up. What mechanisms are in place to resolve issues and adopt mitigation measures during the sampling year?*

Annual plans for the collection of samples from the commercial fisheries are prepared by NIMRD Constanta. The sampling progress has not experienced major fluctuations in the past and we expect no problems in the next program.

AR comment: No deviations.

Data capture

Means of data capture: *short description (+ optional photo). Indicate what are the means for collecting the data, e.g. scales, measuring board, dedicated software, ...*

National Institute of Marine Research and Development *Grigore Antipa* Constanta (NIMRD) - is responsible for the implementation of the program. Is an institution with specific responsibilities and experience in developing studies in the field of Marine Living Resources in the Black Sea, as well as in reporting data to regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM, FAO, MEDIAS, MEDITS). It has qualified personnel and the necessary equipment to carry out the proposed topics in good condition and an experience in monitoring living marine resources. The institute has his own research vessel and equipment (pelagic and demersal trawls). Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring

and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field of marine research, having an activity of over 51 years in this field, especially in the Black Sea waters

Detailed information for the means for collecting the data is available in the Methodology for biological sampling in the Romanian Black Sea area document, available at:

http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=e**n** - Collection Methodology (*Ctrl + Click on indicated link*).

To ensure accurate measurements, the laboratories equipment is kept in good condition, scales are regularly calibrated and checked by a qualified technician. The laboratory protocols for each sample include a full description of all measurements. All biological data, collected at landing ports or in the laboratory is completely documented and should be traceable back to its origin. The documentation contains a description of sampling equipment and procedures, reference to standard operating procedures (SOP) for sample handling and analytical procedures involved.

Data capture documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture, etc.) exists, provide some details in the textbox*.

The data capture documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click on indicated link*) - in the files Methodologies for biological sampling in the Romanian Black Sea area, in the GFCM-DCRF manual and in the quality documents;

Estimation of sex of Rapana venosa is based on the following paper: Bondarev, 2015, Sexual differentiation and variations sexual characteristics Rapana venosa (Valenciennes, 1846), International Journal of Marine Science, Vol.5, No.19 1-10 (doi: 10.5376/ijms.2015.05.0019
https://www.researchgate.net/publication/277553129_Sexual_differentiation_and_variations_sexual_characteristics_Rapana_venosa_Valenciennes_1846

Quality checks documentation: *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box.*

Y

NIMRD Constanta involved in the biological monitoring of Romanian landings followed internal rules adopted in the institute to meet the quality of the data processed and analysed. The following documents available at link**:** http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en-Collection Methodology (Ctrl + *Click on indicated link*)

Methodologies for biological sampling in the Romanian Black Sea area;
Guidelines on Data Quality Assurance and Data Quality Control - (Example has been given with the anchovy with a remark that all measures proposed are valid for all small pelagic species in Romanian marine area);
GFCM-DCRF-manual;
Best practice guideline on scientific surveys and holistic methods in the Black Sea;
Manual of protocols on methods used for assessing fish stocks in the Black Sea by analytic methods.

AR comment: No deviations

Data storage

National database: *Provide the name of the national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website*.

NA

National database-in updating process. Actually, until the project for up-dating National data base will be

finished and integrated in NAFA consolidated data base (centralized), collected data are available in the server of NIMRD Constanta.

International database: *Provide the name of the international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.*

N/A – no regional data base is still in place.

But Romania is transmitting all requested data by the end-users, mainly: GFCM database / DCRF platform / and in JRC database / Mediterranean and Black Sea data call, MEDIAS, MEDITS etc

Quality checks and data validation documentation: *Provide a link to webpage where the documentation can be found. Otherwise, provide some details in the text box.*

The documentation for quality checks and data validation information is available on the following link: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*).

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in each institute, including all steps from the collection of samples to final reporting and data storage.

AR comment: No deviations

Sample storage

Storage description: Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for storing samples; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples are stored under the auspices/responsibility of an international organisation and, if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.

NIMRD Constanta is responsible for the storage of the samples of the different species and the samples are not stored under the auspices/responsibility of an international organisation. Part of samples (already processed) are frozen and kept for internal data quality checks. The collected samples from turbot are stored at the NIMRD. Samples for determining the fecundity of turbot, which are taken and examined in the 2nd quarter of each year, are stored in a 4% solution of formaldehyde in plastic containers for 4 years. Each sample is numbered and labelled. Samples from each pair of otoliths, immediately after removal from the fish are washed and stored in plastic ependorphs in 96% ethyl alcohol. The samples of the stomachs immediately after their removal are inserted in plastic containers in 4% solution of formaldehyde for further analysis. The soft tissue samples are stored in 40% formalin. All samples are labelled and numbered in the order in which the fish are dissected and are stored for 4 years.
Preservation fish samples and rapa whelk shells are stored for 2 years in the laboratories of NIMRD Constanta: cooling is one of the methods used to preserve fish samples and freezing samples - on board and subsequently placed in a freezer at institute laboratories.
Freezing and cooling led to different effects on morphological characters. In the case of freezing, a degradation in colour from goldish-brown to grey-blackish was visible in every case, while the body shape was unaffected overall, except for the belly being less elevated, soft and pliable after defrosting.
Otolith preparation and analysis - Sagittal otoliths were removed, as were the large pieces of remaining tissue, using tweezers, before being placed in water-filled Eppendorf's to soak overnight. If tissue remained after this, otoliths were either left to soak in Eppendorf's filled with a 1% solution of potassium hydroxide overnight or a 3% solution of potassium hydroxide for 5 h before being washed in water. Otoliths were then dried overnight before being photographed using the Olympus Trinocular Stereo microscope at 6.3× magnification with an attached Olympus DP25 camera equipped with the imaging system cell^a. An image was taken of the interior and exterior of both the left and right otoliths. Using the same imaging software, measurements (μm) on the exterior side were taken of otolith length – the longest distance between the most anterior and posterior points - (OL) and otolith width – the longest distance between the ventral and dorsal edges - (OW), with the measurements for OL and OW perpendicular to each other. Otoliths were then can be weighed to the nearest 0.001 g – otolith mass – (OM).
Hard parts as otoliths are preserved at the time of age reading by 3 independent readers.

Sample analysis: *Provide a brief description or references to documents, including links to webpages (e.g. age reading manuals, EGs reports and protocols) if appropriate, where information on the processing of the samples is provided.*

Information about the sample analysis is available in the following documents available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)
Bondarev, 2015 - *Sexual differentiation and variations sexual characteristics Rapana venosa* (Valenciennes, 1846), International Journal of Marine Science, Vol.5, No.19 1-10 (doi: 10.5376/ijms.2015.05.0019
https://www.researchgate.net/publication/277553129_Sexual_differentiation_and_variations_sexual_characteristics_Rapana_venosa_Valenciennes_1846
Paolo Carpentieri, 2019 - *Monitoring incidental catch of vulnerable species in the Mediterranean and the Black Sea: methodology for data collection*;
Paolo Carpentieri, Angelo Bananno, Giuseppe Scarcella, 2019 - *Technical guidelines for scientific surveys in the Mediterranean and the Black Sea Procedures and sampling for demersal (bottom and beam) trawl surveys and pelagic acoustic surveys;*
Paolo Carpentieri, Aurora Nastasi, Margherita Sessa, Abdellah Srour, 2020 - *Incidental catch of vulnerable species in Mediterranean and the Black Sea fisheries a review;*
Jacques Sacchi - *Overview of mitigation measures to reduce the incidental catch of vulnerable species in fisheries*

AR comment: No deviations

Data processing

Evaluation of data accuracy (bias and precision): *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox.*

Y

Information about the data accuracy is available in the following documents available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*);
The precision of the sampling program is based on the requirements of the following reports:
"Sampling Calculation and Methodology for Fisheries Data" (WKSCMFD) (ICES 2004) - https://www.ices.dk/sites/pub/CM%20Doccuments/2004/ACFM/ACFM1204.pdf and *Report of the Study Group on Practical Implementation of Discard Sampling Plans* (SGPIDS) (ICES, 2011a) - https://www.ices.dk/community/Documents/PGCCDBS/SGPIDS%202011.pdf
The morphometric relationships between the biological parameters - total weight (TW), shell length (SL), shell width (Wd), aperture length (AL) are analysed on the basis of classical allometric models. The least squares method will be used to estimate the linear - weight relationships (LWR), based on the following equation:
$W=a\times L^{\wedge b}$, where, W – weight; L – length; a, b – constants.
The XLSTAT software is be used to display the linear-weight histograms of the samples from the *Rapana* landings. The statistical data about the different length and weight classes, presented in the histograms, include lower and upper limits, frequency, relative frequency, and density.
Summarized statistics (Mean values, Standard Error, Median, Mode, Standard Deviation, Sample Variance, Kurtosis, Skewness, Range, Minimum, Maximum, Confidence Level, 95.0%) about the measured biological parameters of *Rapana* by ports - Total weight (TW - weight with shell, TW, g), body weight (BW, g), % of BW from TW, shell length (shell length, SL, mm), shell width (Wd, mm) and aperture length (AL, mm) will be presented separately, where relevant.

Editing and imputation methods: *Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the editing and imputation methods exists, provide some details in the textbox.*

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta, including all steps from data collection and analysis to final reporting. All data, collected in the sea, are included in protocols and checked by a different number of scientists in institute for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists in institut. Editing and imputation of the

technical and scientific reports is being conducted by 3 members of the scientific team (http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)

Quality document associated to a dataset: *Has a publication digital object identifier (DOI) been created? Is there a document summarising the estimation process that has been followed*?

Y

Information about the data accuracy is available in the following documents available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)
Methodologies for biological sampling in the Romanian Black Sea area;
GFCM-DCRF-manual;
Best practice guideline on scientific surveys and holistic methods in the Black Sea;
Manual of protocols on methods used for assessing fish stocks in the black sea by analytic methods;
Technical guidelines for scientific surveys in the Mediterranean and the Black Sea - Procedures and sampling for demersal (bottom and beam) trawl surveys and pelagic acoustic surveys;
Guidelines on Data Quality Assurance and Data Quality Control;
Sampling Calculation and Methodology for Fisheries Data (WKSCMFD) (ICES 2004) - https://www.ices.dk/sites/pub/CM%20Doccuments/2004/ACFM/ACFM1204.pdf
Report of the Study Group on Practical Implementation of Discard Sampling Plans (SGPIDS) (ICES, 2011a) - https://www.ices.dk/community/Documents/PGCCDBS/SGPIDS%202011.pdf

Validation of the final dataset: *How are datasets validated (quality checked) before being provided to the end user?*

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in institute, including data labelling, checks on final protocols, reanalysis of samples at annual basis etc. The laboratory data and data analyses are finally cross-checked by different number of scientists according the institute and the exact monitoring program (project leader and lab leading scientists). The data accuracy, relevancy, completeness and timeliness are executed and checked by the researchers in institute.

AR comment: No deviations

SciObsAtSea *Commercial fishing trip* All species

MS: ROMANIA (ROU)

Region: Mediterranean and Black Sea

Sampling scheme identifier: *SciObsAtSea* *Commercial fishing trip* All species

Sampling scheme type: Commercial fishing trip

Observation type: *SciObsAtSea*

Time period of validity: from 2022 until 2024

Short description (max 100 words): *e.g. sampling scheme aiming to collect length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French, Portuguese, and Spanish).*

The research survey performed by observers on board aims at data collection for incidental catches of sensitive species by different types of fishing activities of the Romanian fisheries' fleet, as the following types of fishing vessels will be observed:

* Pelagic species fishing with pelagic trawl;
* Rapa whelk fishing with beam trawl;
* Turbot fishing with gillnets;

The major groups be observed on board of fishing vessels will include: picked dogfish; thornback ray; stingray; sturgeons, Pontic shad; Black Sea shad; big-scale sand smelt; garfish; gobies; golden grey mullet; mullet spp.; whiting; crayfish; bluefish, striped venus; banded wedge shell; mediterranean mussel, brown shrimp; rockpool prawn; mammals and birds

The main priorities of the sampling will be:

* Observations by different gear types/metiers
* Catches composition and size, with site specific details and specificity by different gear types / metiers
* The amount and proportion of non-targeted species their fate/condition at release
* Bycatch rate by different gear types/metiers and fishing effort locations.

The sampling scheme on board the vessel aims to collect the following information:
- length, weight, sex, age, maturity and fecundity for *Sprattus sprattus, Mullus barbatus, Trachurus mediterraneus, Engrauslis encrasicolus, Merlangius merlangus* from vessels using OTM, targeting pelagic species;
- length, weight, sex, age, maturity, fecundity of turbot (*Scophthalmus maximus*) collected from vessels using GNS for turbot fisheries in GSA 29;
- length, weight and sex for rapa whelk, from vessels using TBB;
- sampling for the stomach, for the species turbot (*Scophthalmus maximus*), sprat (*Spratus spratus*) and horse mackerel (*Trachurus mediterraneus*);
- collection of data and information on the capture of vulnerable species (bone fish; cartilaginous fish, mammals; birds, molluscs and crustaceans). On-board observers will be used to collect the data.

The collected data includes the species composition, quantities, biological parameters and condition of the bycatches by different gears and metiers, as well as total catch of the target species, catches of other industrial species. The dynamics of the main catches and bycatches quantities by months and/or seasons, or by sampling localities will be estimated. Information about the bycatch species composition, bycatch rate, size, sex and age structure (if possible). The impact of commercial fishing will be assessed according to the indicator values of the bycatch rate for the observed fishing activities. The sampling scheme covers Black Sea waters.

Description of the population

Population targeted: *Specify which are the primary sampling units (PSUs), e.g. all national port*days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area*.

The scientific observations of the vessels of the Romanian fishing fleet will cover 75 fishing days (distributed according to the share of the types of fishing activity).

The primary sampling units are commercial fishing trips. The samples for the analysis will be collected directly from the Romanian landing ports. The sampling will remain the same as in previous years – it will be done by purchasing samples at the time of landings at the ports.
The target population consists of fishing trips of vessels using pelagic trawls, vessels using beam trawls, vessels using longlines and vessels with set gillnets for turbot.

Population sampled: Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason, *e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends.* For research surveys at sea describe target species in single-species surveys or ecosystem component *(e.g. demersal, pelagic)* in multispecies surveys.
All parts of the target population have equal chances of being observed and there is no part of the population that is unreachable.

Stratification: Explain the logic taken to stratify the population and the number of strata generated, *e.g. population stratified in three geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.*

There is no specific geographical stratification since the PSU is a commercial fishing trip in the Romanian Black Sea waters.

AR comment: No deviations.

Sampling design and protocols

Sampling design description: *Describe how the sampling allocation is defined; how PSUs and SSUs are selected for sampling; indicate for which catch fraction the sampling scheme applies*.

Fishing days will be considered as the main unit, used in the observations.
To ensure that data collected provide representative information and sampling for all planned fleet segments distribution of fishing days that will be observed is planned and described in the short description above. The primary sampling units commercial fishing days have an equal and independent probability of being observed. Simple random sampling without replacement (SRSWOR) is planned.

http://home.iitk.ac.in/~shalab/sampling/chapter2-sampling-simple-random-sampling.pdf

Methodologies for the biological sampling in the Romanian Black Sea area. Document are available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection-methodologies

Is the sampling design compliant with the 4S principle? Y*/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)*

Y

Regional coordination:
The sampling design and protocols follow the recommendation of FAO, applicable for the Mediterranean and Black Sea fisheries research: FAO (2019a): *Monitoring discards in Mediterranean and Black Sea fisheries: methodology for data collection*; http://www.fao.org/3/ca4914en/ca4914en.pdf and FAO (2019b): *Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection*; http://www.fao.org/3/ca4991en/CA4991EN.pdf. Both documents are also available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en – *International Methods*

The sampling design and protocols were not developed as part of a regional or multi-lateral agreement, but according to the agreement between Romania and Bulgaria, both countries will undertake annually biological monitoring in their territorial waters and EEZ under their jurisdiction, following common methodology and harmonization of biological data sampling. The agreement is available at the following link: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - New Agreement (*Ctrl + Click on indicated link*).

Link to sampling design documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide some details in the textbox.

Documentation for the sampling design is available in the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection-methodologies (*Ctrl + Click on indicated link*).
Methodologies for biological sampling in the Romanian Black Sea area.

Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: *Methodology for data collection and Monitoring discards in Mediterranean and Black Sea fisheries: methodology for data collection* / http://www.fao.org/3/x8923e/x8923e.pdf

Compliance with international recommendations: Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text, and should be available upon request for the evaluators.

Y.

The sampling design is in line with international recommendations. Romania complies with and implements all international recommendations (RCG and GFCM).

Link to sampling protocol documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details of the sampling protocol in this textbox.*

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection-methodologies (*Ctrl + Click on indicated link*).

Compliance with international recommendations: Enter 'Y' (yes) if the sampling protocol is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling protocol should be shortly explained in the text, and should be available upon request for the evaluators.

Y

Romania complies with and implements all international recommendations (JRC, RCG, GFCM and STECF).

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: *Indicate 'Y' (yes), 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available.*

Y

The refusal rate should be recorded, but it is not likely to happen because scientists are buying the samples

Monitoring of sampling progress within the sampling year: *Indicate how sampling allocations are adjusted (if needed) and followed-up. What mechanisms are in place to resolve issues and adopt mitigation measures during the sampling year?*

Annual plans for the collection of samples from the commercial fisheries are prepared by NIMRD Constanta. The sampling progress has not experienced major fluctuations in the past and we expect no problems in the next program.

AR comment: No deviations.

Data capture

Means of data capture: *short description (+ optional photo). Indicate what are the means for collecting the data, e.g. scales, measuring board, dedicated software, ...*

National Institute of Marine Research and Development *Grigore Antipa* Constanta (NIMRD) - is responsible for the implementation of the program. Is an institution with specific responsibilities and experience in developing studies in the field of Marine Living Resources in the Black Sea, as well as in reporting data to regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM, FAO, MEDIAS, MEDITS). It has qualified personnel and the necessary equipment to carry out the proposed topics in good condition and an experience in monitoring living marine resources. The institute has his own research vessel and equipment (pelagic and demersal trawls). Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field of marine research, having an activity of over 51 years in this field, especially in the Black Sea waters
Detailed information for the means for collecting the data is available in the Methodology for biological sampling in the Romanian Black Sea area document, available at:

http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click on indicated link*).

To ensure accurate measurements, the laboratories equipment is kept in good condition, scales are regularly calibrated and checked by a qualified technician. The laboratory protocols for each sample include a full description of all measurements. All biological data, collected at landing ports or in the laboratory is completely documented and should be traceable back to its origin. The documentation contains a description of sampling equipment and procedures, reference to standard operating procedures (SOP) for sample handling and analytical procedures involved.

Data capture documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture, etc.) exists, provide some details in the textbox*.

There are internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) in NIMRD, including all steps from planning of marine data collection and analysis - to sea expedition and final reporting. For example, all data, collected in the sea, are included in protocols and checked by two different persons for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists. Scientific data are kept in the form of xls files, as specific technical reports are prepared every six months and on yearly basis.

The data capture documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click on indicated link*), in the files Methodologies for biological sampling in the Romanian Black Sea area, in the

GFCM-DCRF manual and in the quality documents;

Quality checks documentation: *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box*.

Y

NIMRD Constanta involved in the biological monitoring of Romanian landings followed internal rules adopted in the institute to meet the quality of the data processed and analysed. The following documents available at link**:** http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en **-** Collection Methodology (Ctrl + *Click on indicated link*)

Methodologies for biological sampling in the Romanian Black Sea area;
Guidelines on Data Quality Assurance and Data Quality Control - (Example has been given with the anchovy with a remark that all measures proposed are valid for all small pelagic species in Romanian marine area);
GFCM-DCRF-manual;
Best practice guideline on scientific surveys and holistic methods in the Black Sea;
Manual of protocols on methods used for assessing fish stocks in the Black Sea by analytic methods.

AR comment: No deviations.

Data storage

National database: *Provide the name of the national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website*.

NA

National database-in updating process. Actually, until the project for up-dating National data base will be finished and integrated in NAFA consolidated data base (centralized), collected data are available in the server of NIMRD Constanta. Their database is not accessible through a website.

International database: *Provide the name of the international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.*

NA – no regional data base is still in place.

But Romania is transmitting all requested data by the end-users, mainly: GFCM database / DCRF platform / and in JRC database / Mediterranean and Black Sea data call, MEDIAS, MEDITS etc

Quality checks and data validation documentation: *Provide a link to webpage where the documentation can be found. Otherwise, provide some details in the text box.*

The documentation for quality checks and data validation information is available on the following link: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en **-** Collection Methodology (*Ctrl + Click ton indicated link*).

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in each institute, including all steps from the collection of samples to final reporting and data storage.

AR comment: No deviations.

Sample storage

Storage description: Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for storing samples; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples are stored under the auspices/responsibility of an international organisation and, if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.

NIMRD Constanta is responsible for the storage of the samples of the different species and the samples are not stored under the auspices/responsibility of an international organisation. Part of samples (already processed) are frozen and kept for internal data quality checks. The collected samples from turbot are stored at the NIMRD. Samples for determining the fecundity of turbot, which are taken and examined in the 2nd quarter of each year, are stored in a 4% solution of formaldehyde in plastic containers for 4 years. Each sample is

numbered and labelled. Samples from each pair of otoliths, immediately after removal from the fish are washed and stored in plastic ependorphs in 96% ethyl alcohol. The samples of the stomachs immediately after their removal are inserted in plastic containers in 4% solution of formaldehyde for further analysis. The soft tissue samples are stored in 40% formalin. All samples are labelled and numbered in the order in which the fish are dissected and are stored for 4 years.
Preservation fish samples and rapa whelk shells are stored for 2 years in the laboratories of NIMRD Constanta: cooling is one of the methods used to preserve fish samples and freezing samples - on board and subsequently placed in a freezer at institute laboratories.
Freezing and cooling led to different effects on morphological characters. In the case of freezing, a degradation in colour from goldish-brown to grey-blackish was visible in every case, while the body shape was unaffected overall, except for the belly being less elevated, soft and pliable after defrosting.
Otolith preparation and analysis - Sagittal otoliths were removed, as were the large pieces of remaining tissue, using tweezers, before being placed in water-filled eppendorfs to soak overnight. If tissue remained after this, otoliths were either left to soak in eppendorfs filled with a 1% solution of potassium hydroxide overnight or a 3% solution of potassium hydroxide for 5 h before being washed in water. Otoliths were then dried overnight before being photographed using the Olympus Trinocular Stereo microscope at 6.3× magnification with an attached Olympus DP25 camera equipped with the imaging system cell^a. An image was taken of the interior and exterior of both the left and right otoliths. Using the same imaging software, measurements (µm) on the exterior side were taken of otolith length – the longest distance between the most anterior and posterior points - (OL) and otolith width – the longest distance between the ventral and dorsal edges - (OW), with the measurements for OL and OW perpendicular to each other. Otoliths were then can be weighed to the nearest 0.001 g – otolith mass – (OM).
Hard parts as otoliths are preserved at the time of age reading by 3 independent readers.

Sample analysis: *Provide a brief description or references to documents, including links to webpages (e.g. age reading manuals, EGs reports and protocols) if appropriate, where information on the processing of the samples is provided.*

Information about the sample analysis is available in the following documents available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)
Bondarev, 2015 - *Sexual differentiation and variations sexual characteristics Rapana venosa* (Valenciennes, 1846), International Journal of Marine Science, Vol.5, No.19 1-10 (doi: 10.5376/ijms.2015.05.0019; https://www.researchgate.net/publication/277553129_Sexual_differentiation_and_variations_sexual_characteristics_Rapana_venosa_Valenciennes_1846
Paolo Carpentieri, Angelo Bananno, Giuseppe Scarcella, 2019 - *Technical guidelines for scientific surveys in the Mediterranean and the Black Sea Procedures and sampling for demersal (bottom and beam) trawl surveys and pelagic acoustic surveys.*

AR comment: No deviations

Data processing

Evaluation of data accuracy (bias and precision): *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox.*

Y

Information about the data accuracy is available in the following documents available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*);
The precision of the sampling program is based on the requirements of the following reports:
"Sampling Calculation and Methodology for Fisheries Data" (WKSCMFD) (ICES 2004) - https://www.ices.dk/sites/pub/CM%20Doccuments/2004/ACFM/ACFM1204.pdf and *Report of the Study Group on Practical Implementation of Discard Sampling Plans* (SGPIDS) (ICES, 2011a) - https://www.ices.dk/community/Documents/PGCCDBS/SGPIDS%202011.pdf.

The morphometric relationships between the biological parameters - total weight (TW), shell length (SL), shell width (Wd), aperture length (AL) are analysed on the basis of classical allometric models. The least squares

method will be used to estimate the linear - weight relationships (LWR), based on the following equation: $W=a\times L^{\wedge b}$, where, W – weight; L – length; a, b – constants.
The XLSTAT software is be used to display the linear-weight histograms of the samples from the *Rapana* landings. The statistical data about the different length and weight classes, presented in the histograms, include lower and upper limits, frequency, relative frequency, and density.
Summarized statistics (Mean values, Standard Error, Median, Mode, Standard Deviation, Sample Variance, Kurtosis, Skewness, Range, Minimum, Maximum, Confidence Level, 95.0%) about the measured biological parameters of *Rapana* by ports - Total weight (TW - weight with shell, TW, g), body weight (BW, g), % of BW from TW, shell length (shell length, SL, mm), shell width (Wd, mm) and aperture length (AL, mm) will be presented separately, where relevant.

Editing and imputation methods: *Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the editing and imputation methods exists, provide some details in the textbox.*

Y

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta, including all steps from data collection and analysis to final reporting. All data, collected in the sea, are included in protocols and checked by a different number of scientists in institute for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists in institut. Editing and imputation of the technical and scientific reports is being conducted by 3 members of the scientific team. The documentation is (http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)

Quality document associated to a dataset: *Has a publication digital object identifier (DOI) been created? Is there a document summarising the estimation process that has been followed*?

The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)

Validation of the final dataset: How are datasets validated (quality checked) before being provided to the end user?

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta, including all steps from data collection and analysis to final reporting. All data, collected in the sea, are included in protocols and checked by a different number of scientists in institute for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists in institut. Editing and imputation of the technical and scientific reports is being conducted by 3 members of the scientific team (http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*).

AR comment: No deviations.

PTSBS

MS: ROMANIA
Region: Mediterranean and Black Sea
Sampling scheme identifier: PTSBS
Sampling scheme type: Research survey at sea
Observation type: SciObsAtSea
Time period of validity: from 2022 to 2024
Short description (max 100 words): e.g. sampling scheme aiming to collect length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French, Portuguese, and Spanish).

Pelagic trawl survey will be accomplished in spring and autumn seasons each year. The research survey will be held in the area enclosed between Sulina and Vama Veche, with a total length of the coastline of 240 km. Romanian Black Sea waters will be partitioned into 45 equals in size, not overlying fields and during each survey (spring and autumn) 30 random mid-water hauls will be carried out in the Romanian area, 60 hauls in total per year. The survey covers the Romanian Black Sea waters.
The main objectives of sea expeditions are: estimating the abundance indices of the main demersal and pelagic species of commercial interest; a description of the demographic structure of the species of fishing interest, together with the spatial distribution patterns; carrying out the size and biological sampling, including the extraction of the parts to determine the age of the main fishing species concerned and the assessment of the environmental impact of the fishing activity.
The sampling scheme on board the vessel aims to collect the following information:
- length, weight, sex, age, maturity and fecundity for *Sprattus sprattus, Mullus barbatus, Trachurus mediterraneus, Engrauslis encrasicolus, Merlangus merlangius* from vessels using OTM, targeting pelagic species;
- sampling for the stomach, for the species sprat (*Spratus spratus*) and horse mackerel (*Trachurus mediterraneus*);
- collection of data and information on the capture of vulnerable species (bone fish; cartilaginous fish, mammals; birds, molluscs and crustaceans). On-board observers will be used to collect the data.

Description of the population

Population targeted: *Specify which are the primary sampling units (PSUs), e.g. all national port*days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area.*

The main targeted species is sprat (Sprattus sprattus). According to the list of species caught during the previous pelagic trawl surveys, an analysis of the abundance of red mullet, anchovy and Mediterranean horse mackerel will also be done, if they exist in the catch.
The survey area is the Romanian Black Sea waters.

Population sampled: *Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason, e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends. For research surveys at sea describe target species in single-species surveys or ecosystem component (e.g. demersal, pelagic) in multispecies surveys.*

The PTSBS is targeting sprat and other pelagic species in the Black Sea, but in general, all the species which exist in the catch are recorded and assessed.

Stratification: *Explain the logic taken to stratify the population and the number of strata generated, e.g. population stratified in three geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.*

To address the research objectives, the region was divided into the following strata according to depth – Stratum 1 (15-35 m), Stratum 2 (35–50 m), Stratum 3 (50–750 m). The stratification is based on scientific experience and historical pelagic trawl surveys.

AR comment: No deviations.

Sampling design and protocols

Sampling design description: Describe how the sampling allocation is defined; how PSUs and SSUs are selected for sampling; indicate for which catch fraction the sampling scheme applies.

To establish the abundance of the reference species in front of the Romanian coast a standard methodology for stratified sampling was used (Gulland, 1966;). To address the research objectives the region was divided into four strata according to depth – Stratum 1 (15-35 m) Stratum 2 (35–50 m), Stratum 3 (50–75 m). Each field is a rectangle with sides 10' Lat × 10' Long and area around 125.16 km^2 (measured by application of GIS), large enough for a standard lug extent in a meridian direction to fit within the field boundaries. At each of the fields, only one haul with a duration between 30 min at speed 2.4 - 2.7 knots will be carried out. The research survey includes all fractions of catch.
The length classes regarding the stomach content analysis of sprat described in the STREAM deliverable 4.1 will be used (<8 cm and >8 cm). 100 full stomachs will the analysed from sprat <8 cm and 100 full stomachs of sprat over 8 cm. The length classes of Mediterranean horse mackerel described in the STREAM deliverable 4.1 will be used (<10 cm and >10 cm). 50 full stomachs will the analysed from Mediterranean horse mackerel

<10 cm and 50 full stomachs of Mediterranean horse mackerel >10 cm. The numbers are agreed between Romania and Bulgaria.
The main reference documents are:
Deliverable D4.1 from STREAM
Methodology for the pelagic trawl survey in the Romanian Black Sea area
Both documents are available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en – Materials a Methods (*Ctrl + Click ton indicated link*)

Is the sampling design compliant with the 4S principle? *Y/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)*

NA

Regional coordination: *Indicate if the sampling design and protocols were developed as part of a regional or multi-lateral agreement, and if yes, refer to the agreement (table 1.3) and list all participating Member States*.

The sampling design and protocols were not developed as part of a regional or multi-lateral agreement, but according to the agreement between Romania and Bulgaria, both countries will undertake annually research surveys in their territorial waters and EEZ under their jurisdiction, following common methodology, harmonization of biological data sampling and analysis and harmonization of stock assessment methods. The results from the pelagic trawl survey are presented during the MEDIAS meeting and all relevant GFCM data preparation meetings and stock assessment meetings.

Link to sampling design documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide some details in the textbox.*

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en – Materials and Methods (*Ctrl + Click ton indicated link*)

Compliance with international recommendations: *Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text, and should be available upon request for the evaluators*.

Y

The sampling design is in line with international recommendations.

Link to sampling protocol documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details of the sampling protocol in this textbox.*
The sampling protocol documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en – *Materials and Methods* (*Ctrl + Click ton indicated link*)

Compliance with international recommendations: *Enter 'Y' (yes) if the sampling protocol is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling protocol should be shortly explained in the text, and should be available upon request for the evaluators*.

Y.

The sampling protocol is in line with international recommendations.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: *Indicate 'Y' (yes), 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available.*

NA

Monitoring of sampling progress within the sampling year: *Indicate how sampling allocations are adjusted (if needed) and followed-up. What mechanisms are in place to resolve issues and adopt mitigation measures during the*

sampling year?

The number of stations could vary depending on the specific adjustments related to the increase of the number of hauls in specific areas depending on currents, hydrometeorological conditions at the local station etc.

AR comment: No deviations.

Data capture

Means of data capture: *short description (+ optional photo). Indicate what are the means for collecting the data, e.g. scales, measuring board, dedicated software, ...*

NIMRD Constanța - is responsible for the implementation of the program. Is an institution with specific responsibilities and experience in developing studies in the field of Marine Living Resources in the Black Sea, as well as in reporting data to regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM, FAO, MEDIAS, MEDITS). It has qualified personnel and the necessary equipment to carry out the proposed topics in good condition and an experience in monitoring living marine resources. The institute has his own research vessel and equipment (pelagic and demersal trawls). Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field of marine research, having an activity of over 51 years in this field, especially in the Black Sea waters

Detailed information for the means for collecting the data is available in the Methodology for biological sampling in the Romanian Black Sea area document, available at:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

The data recorded and samples collected at each haul include (Gulland,1966):

* Depth, measured by the vessel's echo sounder;
* GPS coordinates of start/end haul points;
* Haul duration;
* An abundance of sprat caught;
* Weight of total sprat catch;
* Abundance and weight of other large species;
* Species composition of by-catch.

Laboratory analyses: the samples collected onboard were processed in a laboratory for the determination of age and food composition. The age will be established in otoliths under the binocular microscope. The food spectrum will be determined by the separation of the stomach contents into taxonomic groups identified to the lowest possible level. 4% Formaldehyde solution with marine water is used for the conservation of sprat for stomach content examination.
To ensure accurate measurements, the laboratories equipment is kept in good condition, scales are regularly calibrated and checked by a qualified technician. The laboratory protocols for each sample include a full description of all measurements. All biological data, collected at landing ports or in the laboratory is completely documented and should be traceable back to its origin. The documentation contains a description of sampling equipment and procedures, reference to standard operating procedures (SOP) for sample handling and analytical procedures involved

Statistical analyses: swept area method - the method is based on trawling across the seafloor (area swept), weighted with chains, rock-hopper, and roller gear, or steel beams. Widely used a direct method for demersal species stock assessment (Foote,1996).
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

Data capture documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture, etc.) exists, provide some details in the textbox*.

The data capture documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

Quality checks documentation: *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box*.

Y

NIMRD Constanta followed internal rules adopted in the institute to meet the quality of the data processed and analysed. The following documents available at:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

Methodology for the Pelagic trawl survey in the Romanian Black Sea area;
Guidelines on Data Quality Assurance and Data Quality Control - (Example has been given with the anchovy with remark that all measures proposed are valid for all small pelagic species in Romanian marine area);
GFCM-DCRF-manual;
Best practice guideline on scientific surveys and holistic methods in the Black Sea;
Manual of protocols on methods used for assessing fish stocks in the Black Sea by analytic methods;
Technical guidelines for scientific surveys in the Mediterranean and the Black Sea.

AR comment: No deviations.

Data storage

National database: *Provide the name of the national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.*

NA

The raw data and the relevant datasets are stored by the NIMRD. Their database is not accessible through a website.

International database: *Provide the name of the international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.*

The data collected during the pelagic trawl survey is available in the GFCM-DCFR platform and JRC databases.

Quality checks and data validation documentation: *Provide a link to webpage where the documentation can be found. Otherwise, provide some details in the text box.*

The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

Information for the already validated data by GFCM is available at https://www.fao.org/gfcm/data/safs

AR comment: No deviations.

Sample storage

Storage description: Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for storing samples; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples are stored under the auspices/responsibility of an international organisation and, if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.

Hard parts as otoliths are preserved at the time of age reading by 3 independent readers. Stomach and zooplankton samples are stored in the zooplankton laboratory (4% Formaldehyde solution) at the NIMRD premises.
Sample analysis: Provide a brief description or references to documents, including links to webpages (e.g. age reading manuals, EGs reports and protocols) if appropriate, where information on the processing of the samples is provided.

The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*).

AR comment: No deviations

Data processing

Evaluation of data accuracy (bias and precision): *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox.*

Y

The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

Editing and imputation methods: *Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the editing and imputation methods exists, provide some details in the textbox.*

Y

Editing and imputation documentation is available in the NIMRD Constanta, which is conducting the pelagic trawl survey. At NIMRD Constanta editing and imputation of the technical and scientific reports are performed by 3 members of the scientific team.

Quality document associated to a dataset: *Has a publication digital object identifier (DOI) been created? Is there a document summarising the estimation process that has been followed?*

The only document with DOI, which we are using as reference is the technical guidelines for scientific surveys in the Mediterranean and the Black Sea. - FAO Fisheries and Aquaculture Technical Papers No. 641. https://doi.org/10.4060/ca8870en. The rest of the documents do not have a digital object identifier.

The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

Validation of the final dataset: *How are datasets validated (quality checked) before being provided to the end user?*

R software checks and BioIndex checks, so all stages of work are validated:
Running and interpreting scripts developed in R on sampling optimization;
Running quality checks on datasets and interpreting outputs in R;
Running programme BioIndex with output result;
Participation in GFCM and MEDIAS meetings for data preparation and analysis of data from pelagic trawl surveys in the Black Sea.

AR comment: No deviations.

BTSBS

MS: ROMANIA (ROU)

Region: Mediterranean and Black Sea

Sampling scheme identifier: BTSBS

Sampling scheme type: Research survey at sea

Observation type: SciObsAtSea

Time period of validity: from 2022 to 2024

Short description (max 100 words): *e.g. sampling scheme aiming to collect length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French, Portuguese, and Spanish).*

The bottom trawl survey will be conducted in May-June and November-December each year. To establish the abundance and biomass of turbot, piked dogfish and whiting a standard methodology for stratified sampling (Gulland, 1966; Sparre, Venema, 1998;) will be applied. Romanian waters will be partitioned into 100 equals in size, not overlying fields and during each survey (spring and autumn) 40 random mid-water hauls will be

carried out in the Romanian area, 80 hauls in total per year. The research survey covers the Romanian Black Sea waters.
The main objectives of sea expeditions are: estimating the abundance indices of the main demersal and pelagic species of commercial interest; a description of the demographic structure of the species of fishing interest, together with the spatial distribution patterns; carrying out the size and biological sampling, including the extraction of the parts to determine the age of the main fishing species concerned and the assessment of the environmental impact of the fishing activity.
The sampling scheme on board the vessel aims to collect the following information:
- length, weight, sex, age, maturity and fecundity for the turbot (*Scophthalmus maximus*); whiting (*Merlangius merlangus*), Picked dogfish (*Squalus acanthias)* and red mullet (*Mullus barbatus*)*;*
- sampling for the stomach, for the species turbot (*Scophthalmus maximus*),
- collection of data and information on the capture of vulnerable species (bone fish; cartilaginous fish, mammals; birds, molluscs and crustaceans). On-board observers will be used to collect the data.

Description of the population

Population targeted: *Specify which are the primary sampling units (PSUs), e.g. all national port*days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area*.

The target species for the BTSBS are:
* Turbot (*Scophthalmus maximus*) – all available catch during the survey;
* Piked dogfish (*Squalus acanthias*) - all available catch (rare occurrence);
• Whiting (*Merlangius merlangus*) - ichthyological samples will be taken from random hauls

The bycatch species like the thornback ray (*Raja clavata*) and the Common stingray (*Dasyatis pastinaca*) will be measured and analysed. All the species which are caught during the BTSBS will also be analysed.
The research survey area is the Romanian Black Sea coast.

Population sampled*: Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason, e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends. For research surveys at sea describe target species in single-species surveys or ecosystem component (e.g. demersal, pelagic) in multispecies surveys.*

The main target species from the BTSBS are the demersal species turbot (*Scophthalmus maximus*), whiting and piked dogfish, as well as information for all species, gathered as bycatch, during the survey.

Stratification: *Explain the logic taken to stratify the population and the number of strata generated, e.g. population stratified in three geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.*

To establish the abundance and biomass of the reference species of the Romanian Black Sea coast, a standard methodology for stratified sampling (Gulland, 1966; Sparre, Venema, 1998) will be applied.

The surveyed region will be divided into four strata, depending on the depth – Stratum 1 (15-35 m), Stratum 2 (35-50 m), Stratum 3 (50-75 m) and Stratum 4 (75-100 m). For assessment of turbot, whiting and piked dogfish abundance and biomass, the surveyed territory will be divided into 100 squares. The sampling will be carried out at 40 randomly chosen fields (rectangles) in the spring and 40 in autumn, situated at a depth between 15-100 m. Each rectangle is with sides 10'Lat × 10'Long, while the total area is 125.16 km^2 (measured by GIS). Each field will be marked with letters and digits for better distinction.
The seabed area covered during a single haul represents a basic measurement unit, considered representative, as turbots do not aggregate in dense assemblages.

AR comment: No deviations.

Sampling design and protocols

Sampling design description: *Describe how the sampling allocation is defined; how PSUs and SSUs are selected for sampling; indicate for which catch fraction the sampling scheme applies.*

Full coverage of the information is envisaged for all collected specimens of the target species - absolute and standard length, the weight of specimens, otoliths for age determination, turbot stomachs for stomach content analysis, and by-catch species composition.
The stomach composition data will be analysed for as much as possible full stomachs, but we could not assure strict distribution of the collected samples by fish length classes. The minimum which is planned

(according to numbers of specimens with full stomachs during the historical bottom trawl surveys) is 15 in the 2nd quarter and 15 in the 4th quarter. The number is agreed between Romania and Bulgaria. If more full stomachs are available during the research surveys, they will be analysed.
The main reference documents are:
Deliverable D4.1 from STREAM
Methodology for the Bottom trawl survey in the Romanian Black Sea area
Both documents are available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*).

Selected species/stocks were added in the Sampling scheme identifier to be consistent with Table 2.2, Table 2.5, Text box 2.5 and Annex 1.1.

For the other demersal species – weight and length measurements will be performed on all catches (if possible, the sex and age of the bycatch species will be estimated).

Is the sampling design compliant with the 4S principle? *Y/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)*

NA

Regional coordination: *Indicate if the sampling design and protocols were developed as part of a regional or multi-lateral agreement, and if yes, refer to the agreement (table 1.3) and list all participating Member States.*

The sampling design and protocols were not developed as part of a regional or multi-lateral agreement, but according to the agreement between Romania and Bulgaria, both countries will undertake annually research surveys in their territorial waters and EEZ under their jurisdiction, following common methodology, harmonization of biological data sampling and analysis and harmonization of stock assessment methods. The results from the bottom trawl survey are presented during the MEDITS meeting and all relevant GFCM data preparation meetings and stock assessment meetings.

Link to sampling design documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide some details in the textbox.*

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*).

Compliance with international recommendations: *Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text, and should be available upon request for the evaluators.*

Y

The sampling design is in line with international recommendations.

Link to sampling protocol documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details of the sampling protocol in this textbox.*

The sampling protocol documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*).

Compliance with international recommendations: *Enter 'Y' (yes) if the sampling protocol is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling protocol should be shortly explained in the text, and should be available upon request for the evaluators.*

Y

The sampling protocol is in line with international recommendations.

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: *Indicate 'Y' (yes), 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available*.

NA

Monitoring of sampling progress within the sampling year: *Indicate how sampling allocations are adjusted (if needed) and followed-up. What mechanisms are in place to resolve issues and adopt mitigation measures during the sampling year?*

The number of stations could vary depending on the specific adjustments related to the increase of the number of hauls in specific areas depending on currents, hydrometeorological conditions at the local station etc.

AR comment: No deviations.

Data capture

Means of data capture: *short description (+ optional photo). Indicate what are the means for collecting the data, e.g. scales, measuring board, dedicated software*, ...

NIMRD Constanța - is responsible for the implementation of the program. Is an institution with specific responsibilities and experience in developing studies in the field of Marine Living Resources in the Black Sea, as well as in reporting data to regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM, FAO, MEDIAS, MEDITS). It has qualified personnel and the necessary equipment to carry out the proposed topics in good condition and an experience in monitoring living marine resources. The institute has his own research vessel and equipment (pelagic and demersal trawls). Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field of marine research, having an activity of over 51 years in this field, especially in the Black Sea waters

Detailed information for the means for collecting the data is available in the Methodology for biological sampling in the Romanian Black Sea area document, available at:

http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

The catch from all hauls must be fully sorted where practicable. The entire catch is sorted, with fish, shellfish species identified to the lowest taxonomic level possible. For larger catches, a selection of species/size categories of species may be identified as being sufficiently abundant that they can be subsampled appropriately. All fish from target and demersal bycatch species will be measured (length, weight by sex).

Data capture documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture, etc.) exists, provide some details in the textbox*.

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta including all steps of marine data collection and analysis – from the planning of the sea expedition to final reporting. For example, all data, collected in the sea, are included in protocols and checked by two different persons for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists. Scientific data are kept in the form of xls files, as specific technical reports are prepared every six months and on yearly basis, regarding the evolution of the main parameters of the stock, biomass assessments, catch projections, size, age composition, maturity, physical condition etc. and are kept on two different computers, with copies on CD and flash memories.
The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Materials and Methods (Ctrl + Click on indicated link).

Quality checks documentation: *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but*

documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box.

Y

NIMRD Constanta followed internal rules adopted in the institute to meet the quality of the data processed and analysed. The following documents available at http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methodos* (*Ctrl + Click on indicated link*), describes these rules adopted in the NIRMD:
Methodology for the Bottom trawl survey in the Romanian Black Sea area;
Guidelines on Data Quality Assurance and Data Quality Control;
GFCM-DCRF-manual;
Best practice guideline on scientific surveys and holistic methods in the Black Sea;
Manual of protocols on methods used for assessing fish stocks in the Black Sea by analytic methods;
Technical guidelines for scientific surveys in the Mediterranean and the Black Sea.

AR comment: No deviations.

Data storage

National database: *Provide the name of the national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website*.

NA

The raw data and the relevant datasets are stored by the NIRMD Constanta. Their database is not accessible through a website.

International database: *Provide the name of the international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.*

The data collected during the bottom trawl survey is available in the GFCM-DCRF platform and JRC databases.

Quality checks and data validation documentation: *Provide a link to webpage where the documentation can be found. Otherwise, provide some details in the text box*.

The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*).
Information for the already validated data by GFCM-DCFR is available at https://www.fao.org/gfcm/data/safs

AR comment: No deviations.

Sample storage

Storage description: *Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for storing samples; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples are stored under the auspices/responsibility of an international organisation and, if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.*

The hard structures - otoliths, for age readings, are stored for 2 years in the NIMRD Constanta.
In general, the internal protocols for age reading in NIMRD Constanta include standard procedures for:

- otoliths sampling (stratified by size range, season, sex, etc.);
- preparation for analysis (sections, clarifying mediums, etc.);
- otoliths reading (image-analysis systems, filters, lighting, magnification, etc.);
- establishing accuracy and precision.
-sample storage.

Sample analysis: *Provide a brief description or references to documents, including links to webpages (e.g. age reading manuals, EGs reports and protocols) if appropriate, where information on the processing of the samples is provided.*

The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)
and

https://www.ices.dk/sites/pub/Publication%20Reports/Cooperative%20Research%20Report%20(CRR)/CRR%20346.pdf

AR comment: No deviations

Data processing

Evaluation of data accuracy (bias and precision): *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox.*

Y

http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methods* (*Ctrl + Click on indicated link*)

Editing and imputation methods: *Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the editing and imputation methods exists, provide some details in the textbox.*

Y

Editing and imputation documentation is available in the National Institute of Marine Research *Grigore Antipa* Constanta (NIMRD), which is conducting the bottom trawl survey. At NIMRD editing and imputation of the technical and scientific reports are approved by two different persons (scientist and expedition leader).

Quality document associated to a dataset: *Has a publication digital object identifier (DOI) been created? Is there a document summarising the estimation process that has been followed*?
The only document with DOI, which we are using as reference is the technical guidelines for scientific surveys in the Mediterranean and the Black Sea. - FAO Fisheries and Aquaculture Technical Papers No. 641. https://doi.org/10.4060/ca8870en. The rest of the documents do not have digital object identifier.
The documentation is available at: http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - *Materials and Methodos* (*Ctrl + Click on indicated link*).

Validation of the final dataset: *How are datasets validated (quality checked) before being provided to the end user?*

For the Data quality checks of the research survey, NIMRD Constanta, uses MEDITS protocol. It includes common formats for data storage, which include the following standard files: TA (data on the technical specifications of the hauls), TB (aggregated data on the total number and weight by species), TC (aggregated data of the frequency distribution by length, sex and maturity stage by species). To perform automatically the data check procedure by means of a routine enabling errors to be detected and facilitating their correction, the RoME routine, an R code for performing multiple and cross-checks on survey data in TA, TB, TC format. RoME was transformed into a package structured in 55 different functions: the run is performed by means of the function RoME. Each function is related to a specific check and is recalled in a specific order to avoid cascade errors.
Running programme BioIndex with output result: maps and tables that include data related to:

* the surface of the researched square (Km^2, m^2);
* the average mass per unit area (g/m^2, t/Km^2);
* the mass limits variation per unit area;
* the total biomass values (t);
* the abundance index (individuals/km^2).

Participation in GFCM and MEDITS meetings for data preparation and analysis of data from demersal trawl surveys in the Black Sea.

AR comment: No deviations.

Recreational fisheries

MS: ROMANIA (ROU)

Region: Mediterranean and Black Sea

Sampling scheme identifier: *Recreational fisheries*

Sampling scheme type: ***Recreational fisheries***

Observation type: ***SciObsOnShore***

Time period of validity: from 2022 until 2024

Short description (max 100 words): *e.g. sampling scheme aiming to collect length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French, Portuguese, and Spanish).*

Sampling scheme aimed at collecting information from anglers practicing recreational fishing:

- biological sampling resulting from recreational fishing (length, weight and sex), for: *Mesogobius batrachocephalus* / knout goby; *Neogobius melanostomus* / round goby; *Trachurus mediterraneus ponticus* / mediterranean horse mackerel; *Pomatomus saltatrix* / bluefish and *Mullus barbatus ponticus* / red mullet,
- for the other species that appear in recreational fishing in the form of isolated specimens, respectively the species: *Raja clavata* (thornbak ray), *Dasyatis pastinaca* (common stingray), *Squalus acanthias* (picked dogfish), *Liza aurata* (golden grey mullet), *Belone belone* (garfish), *Scorpena porcus* (black scorpionfish), *Trachinus draco* (greater weever) *and Alosa pontica* (pontic shad), no biological data is collected and an annual estimate of the total catch is not possible.

The scheme covers the recreational fishing carried out in the perimeter (Navodari and Vama Veche).

Description of the population

Population targeted: *Specify which are the primary sampling units (PSUs), e.g. all national port*days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area*.

The primary sampling units are trips along the littoral where recreational fishing is practised. The samples for analysis will be collected directly from the fishermen practicing this type of fishing. The target population for sampling will be round goby, knout goby, mediterranean horse mackerel, bluefish and red mullet.

Population sampled: Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason, *e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends.* For research surveys at sea describe target species in single-species surveys or ecosystem component *(e.g. demersal, pelagic)* in multispecies surveys.

All parts of the target population have the same chance to be sampled and there are no parts of the target population, which are unreachable for sampling or excluded for some reason.
The samples collection will be carried out monthly.
The method of PSU selection will be simple random sampling without replacement (SRSWOR)
http://home.iitk.ac.in/~shalab/sampling/chapter2-sampling-simple-random-sampling.pdf

Stratification: Explain the logic taken to stratify the population and the number of strata generated, *e.g. population stratified in three geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.*

There is no specific geographical stratification since the PSU is a commercial fishing trip.

AR comment: No deviations.

Sampling design and protocols

Sampling design description: *Describe how the sampling allocation is defined; how PSUs and SSUs are selected for sampling; indicate for which catch fraction the sampling scheme applies*.

To ensure that the collected data provide representative information, samples from the planned species are collected in the Navodari - Vama Veche sector. The sampling scheme applies to the fraction of catch taken from fishermen. The PSU selection method is simple random sampling with replacement (SRSWR).
Biological sampling methodologies in the Romanian area of the Black Sea. The document is available at: http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Handbook_for_data_collection_on_recreational_fisheries_in_Mediterranean_and_Black_Sea.pdf and http://www.rmri.ro/Home/Downloads/Publications.Other/NAFA_COLLECTION%20METHODOLOGIES.pdf

Is the sampling design compliant with the 4S principle? Y*/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)*

Y

Regional coordination:

The sampling design and protocols were not developed as part of a regional or multi-lateral agreement, but according to the agreement between Romania and Bulgaria, both countries will undertake annually biological monitoring in their territorial waters and EEZ under their jurisdiction, following common methodology and harmonization of biological data sampling. The agreement is available at the following link: http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/BilateralAgreements/Agreement-on-data-collection-activities-between-Bulgaria-and-Romania-2021-2027.pdf (*Ctrl + Click on indicated link*).

Link to sampling design documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide some details in the textbox.

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection-methodologies (*Ctrl + Click on indicated link*).

Compliance with international recommendations: Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text, and should be available upon request for the evaluators.

Y.

The sampling design is in line with international recommendations. Romania complies with and implements all international recommendations (RCG and GFCM).

Link to sampling protocol documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details of the sampling protocol in this textbox.*

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Handbook_for_data_collection_on_recreational_fisheries_in_Mediterranean_and_Black_Sea.pdf (*Ctrl + Click on indicated link*).

Compliance with international recommendations: Enter 'Y' (yes) if the sampling protocol is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling protocol should be shortly explained in the text, and should be available upon request for the evaluators.

Y
Romania complies with and implements all international recommendations (JRC, RCG, GFCM and STECF).

AR comment: No deviations.

Sampling implementation

Recording of refusal rate: *Indicate 'Y' (yes), 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available.*

Y

The refusal rate should be recorded, but it is not likely to happen because scientists are buying the samples

Monitoring of sampling progress within the sampling year: *Indicate how sampling allocations are adjusted (if needed) and followed-up. What mechanisms are in place to resolve issues and adopt mitigation measures during the sampling year?*

Annual plans for the collection of samples from the commercial fisheries are prepared by NIMRD Constanta. The sampling progress has not experienced major fluctuations in the past and we expect no problems in the next program.

AR comment: No deviations.

Data capture

Means of data capture: *short description (+ optional photo). Indicate what are the means for collecting the data, e.g. scales, measuring board, dedicated software, ...*

National Institute of Marine Research and Development *Grigore Antipa* Constanta (NIMRD) - is responsible for the implementation of the program. Is an institution with specific responsibilities and experience in developing studies in the field of Marine Living Resources in the Black Sea, as well as in reporting data to

regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM). It has qualified personnel and the necessary equipment to carry out the proposed topics in good condition and an experience in monitoring living marine resources. The institute has his own research vessel and equipment (pelagic and demersal trawls). Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field of marine research, having an activity of over 51 years in this field, especially in the Black Sea waters

Detailed information for the means for collecting the data is available in the Methodology for biological sampling in the Romanian Black Sea area document, available at:

http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Handbook_for_data_collection_on_recreational_fisheries_in_Mediterranean_and_Black_Sea.pdf (*Ctrl + Click on indicated link*).

To ensure accurate measurements, laboratory equipment is kept in good condition, scales are calibrated and checked periodically by a qualified technician. The laboratory protocols for each sample include a complete description of all measurements. All biological data collected in the field is fully documented and should be traced back to origin. The documentation contains a description of the sampling equipment and procedures, references to standard operating procedures (SOPs) for sample handling, and the analytical procedures involved.

Data capture documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture, etc.) exists, provide some details in the textbox*.

The data capture documentation is available on the following link:
http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click on indicated link*) - in the files Methodologies for biological sampling in the Romanian Black Sea area, in the GFCM-DCRF manual and in the quality documents;

Quality checks documentation: *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box*.

Y

NIMRD Constanta involved in the biological monitoring of Romanian landings followed internal rules adopted in the institute to meet the quality of the data processed and analysed. The following documents available at link**:**
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Handbook_for_data_collection_on_recreational_fisheries_in_Mediterranean_and_Black_Sea.pdf (*Ctrl + Click on indicated link*).

Methodologies for biological sampling in the Romanian Black Sea area;
Guidelines on Data Quality Assurance and Data Quality Control;
GFCM-DCRF-manual;
Best practice guideline on scientific surveys and holistic methods in the Black Sea;

AR comment: No deviations.

Time period of validity: from 2022 to 2024

Stomach sampling

MS: ROMANIA (ROU)

Region: Mediterranean and Black Sea

Sampling scheme identifier: *Stomach sampling*

Sampling scheme type: Stomach sampling / Commercial fishing trip

Observation type*: SciObsAtSea*

Time period of validity: from 2022 until 2024

Short description (max 100 words): *e.g. sampling scheme aiming to collect length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French, Portuguese, and Spanish).*

The sampling scheme on board the vessel aims to collect the sampling for the stomach, for the species turbot (*Scophthalmus maximus*), sprat (*Spratus spratus*) and horse mackerel (*Trachurus mediterraneus*). The sampling scheme covers Black Sea waters.

Description of the population

Population targeted: *Specify which are the primary sampling units (PSUs), e.g. all national port*days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area*.

The primary sampling units are commercial fishing trips. Samples for analysis will be collected on board the ship. Sampling will be done by purchasing samples directly on board the vessel.

Population sampled: Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason, *e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends.* For research surveys at sea describe target species in single-species surveys or ecosystem component *(e.g. demersal, pelagic)* in multispecies surveys.

All parts of the target population have equal chances of being observed and there is no part of the population that is unreachable.

Stratification: Explain the logic taken to stratify the population and the number of strata generated, *e.g. population stratified in three geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.*

There is no specific geographical stratification since the PSU is a commercial fishing trip in the Romanian Black Sea waters.

AR comment: No deviations

Sampling design and protocols

Sampling design description: *Describe how the sampling allocation is defined; how PSUs and SSUs are selected for sampling; indicate for which catch fraction the sampling scheme applies*.

To ensure that data collected provide representative information and sampling for all planned fleet segments distribution of fishing days that will be observed is planned and described in the short description above. The primary sampling units commercial fishing days have an equal and independent probability of being observed. Simple random sampling without replacement (SRSWOR) is planned.
http://home.iitk.ac.in/~shalab/sampling/chapter2-sampling-simple-random-sampling.pdf

Methodologies for the biological sampling in the Romanian Black Sea area. Document are available at http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).

Is the sampling design compliant with the 4S principle? Y*/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)*

Y

Regional coordination:

The sampling design and protocols were not developed as part of a regional or multi-lateral agreement, but according to the agreement between Romania and Bulgaria, both countries will undertake annually biological monitoring in their territorial waters and EEZ under their jurisdiction, following common methodology and harmonization of biological data sampling. The agreement is available at the following link: http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/BilateralAgreements/Agreement-on-data-collection-activities-between-Bulgaria-and-Romania-2021-2027.pdf (*Ctrl + Click on indicated link*).

Link to sampling design documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide some details in the textbox.

Documentation for the sampling design is available in the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).
Methodologies for biological sampling in the Romanian Black Sea area.

Compliance with international recommendations: Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text, and should be available upon request for the evaluators.

Y.

The sampling design is in line with international recommendations. Romania complies with and implements all international recommendations (RCG and GFCM).

Link to sampling protocol documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details of the sampling protocol in this textbox.*

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*)..

Compliance with international recommendations: Enter 'Y' (yes) if the sampling protocol is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling protocol should be shortly explained in the text, and should be available upon request for the evaluators.

Y

Romania complies with and implements all international recommendations (JRC, RCG, GFCM and STECF).

AR comment: No deviations

Sampling implementation

Recording of refusal rate: *Indicate 'Y' (yes), 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available.*

Y

The refusal rate should be recorded, but it is not likely to happen because scientists are buying the samples

Monitoring of sampling progress within the sampling year: *Indicate how sampling allocations are adjusted (if needed) and followed-up. What mechanisms are in place to resolve issues and adopt mitigation measures during the sampling year?*

Annual plans for the collection of samples from the commercial fisheries are prepared by NIMRD Constanta. The sampling progress has not experienced major fluctuations in the past and we expect no problems in the next program.

AR comment: No deviations

Data capture

Means of data capture: *short description (+ optional photo). Indicate what are the means for collecting the data, e.g. scales, measuring board, dedicated software, ...*

National Institute of Marine Research and Development *Grigore Antipa* Constanta (NIMRD) - is responsible for the implementation of the program. Is an institution with specific responsibilities and experience in developing studies in the field of Marine Living Resources in the Black Sea, as well as in reporting data to regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM). It has qualified personnel and the necessary equipment to carry out the proposed topics in good condition and an experience in monitoring living marine resources. The institute has his own research vessel and equipment (pelagic and demersal trawls). Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field

of marine research, having an activity of over 51 years in this field, especially in the Black Sea waters. Detailed information for the means for collecting the data is available in the Methodology for biological sampling in the Romanian Black Sea area document, available at:

http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).

To ensure accurate measurements, the laboratories equipment is kept in good condition, scales are regularly calibrated and checked by a qualified technician. The laboratory protocols for each sample include a full description of all measurements. All biological data, collected at landing ports or in the laboratory is completely documented and should be traceable back to its origin. The documentation contains a description of sampling equipment and procedures, reference to standard operating procedures (SOP) for sample handling and analytical procedures involved.

Data capture documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture, etc.) exists, provide some details in the textbox*.

There are internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) in NIMRD, including all steps from planning of marine data collection and analysis - to sea expedition and final reporting. For example, all data, collected in the sea, are included in protocols and checked by two different persons for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists. Scientific data are kept in the form of xls files, as specific technical reports are prepared every six months and on yearly basis.

The data capture documentation is available on the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*), in the files Methodologies for biological sampling in the Romanian Black Sea area, in the GFCM-DCRF manual and in the quality documents;

Quality checks documentation: *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box*.

Y

NIMRD Constanta involved in the biological monitoring of Romanian landings followed internal rules adopted in the institute to meet the quality of the data processed and analysed. The following documents available at link**:** http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).

Methodologies for biological sampling in the Romanian Black Sea area;
Guidelines on Data Quality Assurance and Data Quality Control - (Example has been given with the anchovy with a remark that all measures proposed are valid for all small pelagic species in Romanian marine area);
GFCM-DCRF-manual;

AR comment: No deviations

Data storage

National database: *Provide the name of the national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website*.

NA

National database-in updating process. Actually, until the project for up-dating National data base will be finished and integrated in NAFA consolidated data base (centralized), collected data are available in the server of NIMRD Constanta. Their database is not accessible through a website.

International database: *Provide the name of the international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.*

NA – no regional data base is still in place.

But Romania is transmitting all requested data by the end-users, mainly: GFCM database / DCRF platform / and in JRC database / Mediterranean and Black Sea data call, etc.

Quality checks and data validation documentation: *Provide a link to webpage where the documentation can be found. Otherwise, provide some details in the text box.*

The documentation for quality checks and data validation information is available on the following link: http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).
Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in each institute, including all steps from the collection of samples to final reporting and data storage.

AR comment: No deviations

Sample storage

Storage description: Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for storing samples; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples are stored under the auspices/responsibility of an international organisation and, if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.

NIMRD Constanta is responsible for the storage of the samples of the different species and the samples are not stored under the auspices/responsibility of an international organisation. The collected samples from turbot are stored at the NIMRD. Samples for determining the stomach contents of turbot, sprat and mediterranian horse mackerel which are taken and examined in the 2nd quarter and 4ad quarter of each year, are stored in a 4% solution of formaldehyde in plastic containers. The proper collection consists in the cutting with the scissors of the digestive tube at its extreme points, the introduction at one end of a note, the number of which will indicate the meristic characteristics of the fish in the age frequency form. The digestive tubes collected and thus labelled are attached to both ends with thread, placed in a gauze bag and placed in formaldehyde (4% solution) as soon as possible, to reduce as much as possible the alteration of the stomach contents. Quantitative analysis is done by weighing method. The samples are stored in 40% formalin. All samples are labelled and numbered in the order in which the fish are dissected.

Sample analysis: *Provide a brief description or references to documents, including links to webpages (e.g. age reading manuals, EGs reports and protocols) if appropriate, where information on the processing of the samples is provided.*

Information about the sample analysis is available in the following documents available at http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).

AR comment: No deviations

Data processing

Evaluation of data accuracy (bias and precision): *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox.*

Y

Information about the data accuracy is available in the following documents available at http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).

Editing and imputation methods: *Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the editing and imputation methods exists, provide some details*.

Y

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta, including all steps from data collection and analysis to final reporting. All data, collected in the sea,

are included in protocols and checked by a different number of scientists in institute for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists in institut. Editing and imputation of the technical and scientific reports is being conducted by 3 members of the scientific team. The documentation is (http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)

Quality document associated to a dataset: *Has a publication digital object identifier (DOI) been created? Is there a document summarising the estimation process that has been followed*?

The documentation is available at: http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/MaterialsAndMethods/Methodology_for_fish_stomach_contents_analysis.pdf (*Ctrl + Click on indicated link*).

Validation of the final dataset: How are datasets validated (quality checked) before being provided to the end user?

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta, including all steps from data collection and analysis to final reporting. All data, collected in the sea, are included in protocols and checked by a different number of scientists in institute for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. Editing and imputation of the technical and scientific reports is being conducted by 3 members of the scientific team (http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*).

AR comment: No deviations

SciObsAtSea*Commercial fishing trip*All species

MS: ROMANIA (ROU)

Region: Mediterranean and Black Sea

Sampling scheme identifier: SciObsAtSea*Commercial fishing trip*All species

Sampling scheme type: *Commercial fishing trip*

Observation type: *SciObsAtSea*

Time period of validity: from 2022 until 2024

Short description (max 100 words): *e.g. sampling scheme aiming to collect length samples from commercial landings on-shore for all species listed in Table 1 of the EU MAP Delegated Decision annex. The scheme covers mainland and all outermost regions ('RUP' in French, Portuguese, and Spanish).*

The research survey performed by observers on board aims at data collection for incidental catches of sensitive species (PETs) by different types of fishing activities of the Romanian fisheries' fleet, as the following types of fishing vessels will be observed: *Pelagic species fishing with pelagic trawl*, *fishing with beam trawl* and *fishing with gillnets*.
The major groups of PETs, that will be observed on board of fishing vessels will include: picked dogfish; thornback ray; stingray; sturgeons, Pontic shad; Black Sea shad; big-scale sand smelt; garfish; gobies; golden grey mullet; mullet spp.; whiting; crayfish; bluefish, striped venus; banded wedge shell; mediterranean mussel, brown shrimp; rockpool prawn; mammals and birds

The main priorities of the sampling will be:
* Document observations of PETs by different gear types / metiers
* Document catches composition and size, with site specific details and specificity by different gear types / metiers
* Document the amount and proportion of non-targeted species (including PETs), and their fate/condition at release
* Document bycatch rate by different gear types/metiers and fishing effort locations.

The sampling scheme on board the vessel aims to collect the following information:
- collection of data and information on the capture of vulnerable species (bone fish; cartilaginous fish, mammals; birds, molluscs and crustaceans). On-board observers will be used to collect the data.
- biological dates for incidental catches of sensitive species, from vessels using OTM, targeting pelagic species;

- biological dates for incidental catches of sensitive species, collected from vessels using GNS for gillnets fisheries;
- biological date for incidental catches of sensitive species, from vessels using TBB;

The collected data includes the species composition, quantities, biological parameters and condition of the bycatches of PETS by different gears and metiers, as well as total catch of the target species, catches of other industrial species. The dynamics of the main catches and bycatches of PETs quantities by months and/or seasons, or by sampling localities will be estimated. Information about the bycatch species (including PETs) composition, PETs bycatch rate, size, sex and age structure (if possible). The impact of commercial fishing will be assessed according to the indicator values of the bycatch rate of PETs for the observed fishing activities. The sampling scheme covers Black Sea waters.

Description of the population

Population targeted: *Specify which are the primary sampling units (PSUs), e.g. all national port*days (information present in former Table 4B). For research surveys: specify the main target species from a survey perspective (as opposed to Table 1 in the Annex to the Implementing Decision) and the main survey area*.

PSUs are fishing days. The scientific observations of the vessels of the Romanian fishing fleet will cover 80 fishing days (distributed according to the share of the types of fishing activity).
The primary sampling units are commercial fishing trips. The primary sampling units are commercial fishing trips. Samples for analysis will be collected directly on board the fishing vessel. The target population consists of fishing trips of vessels using pelagic trawls, vessels using beam trawls, vessels using longlines and vessels with set gillnets for turbot.

Population sampled: Specify which part of the target population will be sampled and specify which part of the target population is unreachable for sampling or excluded for some reason, *e.g. major ports being listed as auctions excluding all minor ports and no sampling during the week-ends.* For research surveys at sea describe target species in single-species surveys or ecosystem component *(e.g. demersal, pelagic)* in multispecies surveys.
All parts of the target population have equal chances of being observed and there is no part of the population that is unreachable.

Stratification: Explain the logic taken to stratify the population and the number of strata generated, *e.g. population stratified in three geographical lots (from A to B, from B to C and from C to D). Each lot is then stratified by auction.*

There is no specific geographical stratification since the PSU is a commercial fishing trip in the Romanian Black Sea waters.

AR comment: No deviations

Sampling design and protocols

Sampling design description: *Describe how the sampling allocation is defined; how PSUs and SSUs are selected for sampling; indicate for which catch fraction the sampling scheme applies*.

Fishing days will be considered as the main unit, used in the observations.
To ensure that data collected provide representative information and sampling for all planned fleet segments distribution of fishing days that will be observed is planned and described in the short description above. The primary sampling units commercial fishing days have an equal and independent probability of being observed.
Simple random sampling without replacement (SRSWOR) is planned.
http://home.iitk.ac.in/~shalab/sampling/chapter2-sampling-simple-random-sampling.pdf

Methodologies for the biological sampling in the Romanian Black Sea area. Document are available at http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Incidental_Cath_of_Vulnerable_Species_in_Mediterranean_and_Black_Sea_Fisheries.pdf

Is the sampling design compliant with the 4S principle? Y*/N/NA (NA for e.g. surveys and diadromous and recreational sampling schemes)*

Y

Regional coordination:
The sampling design and protocols follow the recommendation of FAO, applicable for the Mediterranean and Black Sea fisheries research: FAO (2019b): *Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection*;

http://www.fao.org/3/ca4991en/CA4991EN.pdf.
Both documents are also available at
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Incidental_Cath_of_Vulnerable_Species_in_Mediterranean_and_Black_Sea_Fisheries.pdf

The sampling design and protocols were not developed as part of a regional or multi-lateral agreement, but according to the agreement between Romania and Bulgaria, both countries will undertake annually monitoring in their territorial waters and EEZ under their jurisdiction, following common methodology and harmonization of biological data sampling. The agreement is available at the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/BilateralAgreements/Agreement-on-data-collection-activities-between-Bulgaria-and-Romania-2021-2027.pdf (*Ctrl + Click on indicated link*).

Link to sampling design documentation: Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide some details in the textbox.

Documentation for the sampling design is available in the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click on indicated link*).
Methodologies for biological sampling in the Romanian Black Sea area.

Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf

Compliance with international recommendations: Indicate 'Y' (yes) if the sampling design is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling design should be shortly explained in the text, and should be available upon request for the evaluators.

Y.

The sampling design is in line with international recommendations. Romania complies with and implements all international recommendations (RCG and GFCM).

Link to sampling protocol documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the sampling design exists, provide details of the sampling protocol in this textbox.*

The sampling design documentation is available on the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click on indicated link*).

Compliance with international recommendations: Enter 'Y' (yes) if the sampling protocol is in line with international recommendations, and 'N' if not. If no relevant expert or coordination groups exist, the sampling protocol should be shortly explained in the text, and should be available upon request for the evaluators.

Y

Romania complies with and implements all international recommendations (JRC, RCG, GFCM and STECF).

AR comment: No deviations

Sampling implementation

Recording of refusal rate: *Indicate 'Y' (yes), 'N' (no), or 'NA' (not applicable, in case of research surveys). If 'N' (no), indicate when (year) documentation will be available.*

Y

The refusal rate should be recorded, but it is not likely to happen because scientists are buying the samples

Monitoring of sampling progress within the sampling year: *Indicate how sampling allocations are adjusted (if needed) and followed-up. What mechanisms are in place to resolve issues and adopt mitigation measures during the*

sampling year?

Annual plans for the collection of samples from the commercial fisheries are prepared by NIMRD Constanta. The sampling progress has not experienced major fluctuations in the past and we expect no problems in the next program.

AR comment: No deviations

Data capture

Means of data capture: *short description (+ optional photo). Indicate what are the means for collecting the data, e.g. scales, measuring board, dedicated software, ...*

National Institute of Marine Research and Development *Grigore Antipa* Constanta (NIMRD) - is responsible for the implementation of the program. Is an institution with specific responsibilities and experience in developing studies in the field of Marine Living Resources in the Black Sea, as well as in reporting data to regional bodies (Black Sea Commission, GFCM-Black Sea Subgroup) and international (JRC/DG-MARE, GFCM, FAO). It has qualified personnel and the necessary equipment to carry out the proposed topics in good condition and an experience in monitoring living marine resources. The institute has his own research vessel and equipment (pelagic and demersal trawls). Within the Black Sea Commission, NIMRD functions as the Regional Focal Point for Fisheries as well as a focal point for Pollution Monitoring and Assessment, Biodiversity, Integrated Coastal Zone Management and Control Pollution from Land Sources. At the same time, within the NIMRD, operates the Romanian Focal Point for Fisheries under General Fisheries Commission for the Mediterranean (GFCM). NIMRD is the most important public law organization in the field of marine research, having an activity of over 51 years in this field, especially in the Black Sea waters. Detailed information for the means for collecting the data is available in the Methodology for biological sampling in the Romanian Black Sea area document, available at:

http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click on indicated link*).

To ensure accurate measurements, the laboratories equipment is kept in good condition, scales are regularly calibrated and checked by a qualified technician. The laboratory protocols for each sample include a full description of all measurements. All biological data, collected at landing ports or in the laboratory is completely documented and should be traceable back to its origin. The documentation contains a description of sampling equipment and procedures, reference to standard operating procedures (SOP) for sample handling and analytical procedures involved.

Data capture documentation: *Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on data capture (e.g. measuring protocols, maturity staging, manual for the data capture, etc.) exists, provide some details in the textbox*.

There are internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) in NIMRD, including all steps from planning of marine data collection and analysis - to sea expedition and final reporting. For example, all data, collected in the sea, are included in protocols and checked by two different persons for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists. Scientific data are kept in the form of xls files, as specific technical reports are prepared every six months and on yearly basis.

The data capture documentation is available on the following link:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click on indicated link*), in the files Methodologies for biological sampling in the Romanian Black Sea area, in the GFCM-DCRF manual and in the quality documents;

Quality checks documentation: *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the quality checks exists, provide some details in the text box*.

Y

NIMRD Constanta involved in the biological monitoring of Romanian landings followed internal rules adopted in the institute to meet the quality of the data processed and analysed. The following documents available at link**:** http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en/Collection Methodology (Ctrl + *Click on indicated link*)
Methodologies for biological sampling in the Romanian Black Sea area;
Guidelines on Data Quality Assurance and Data Quality Control - (Example has been given with the anchovy with a remark that all measures proposed are valid for all small pelagic species in Romanian marine area);
GFCM-DCRF-manual;
Best practice guideline on scientific surveys and holistic methods in the Black Sea;
Manual of protocols on methods used for assessing fish stocks in the Black Sea by analytic methods.

AR comment: No deviations

Data storage

National database: *Provide the name of the national database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website*.

NA

National database-in updating process. Actually, until the project for up-dating National data base will be finished and integrated in NAFA consolidated data base (centralized), collected data are available in the server of NIMRD Constanta. Their database is not accessible through a website.

International database: *Provide the name of the international database(s) and the organisation hosting the database, if applicable. Otherwise, insert 'NA' (not applicable). Provide a link if the database is accessible through a website.*

NA – no regional data base is still in place.

But Romania is transmitting all requested data by the end-users, mainly: GFCM database / DCRF platform / and in JRC database / Mediterranean and Black Sea data call.

Quality checks and data validation documentation: *Provide a link to webpage where the documentation can be found. Otherwise, provide some details in the text box.*

The documentation for quality checks and data validation information is available on the following link: http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click ton indicated link*).
Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in each institute, including all steps from the collection of samples to final reporting and data storage.

AR comment: No deviations

Sample storage

Storage description: Indicate the type of soft tissues and hard parts stored (e.g. age structures, stomach, plankton, genetics) and the location used for storing samples; how long the samples are stored; how conservation and maintenance as well as access to samples are organised; whether the samples are stored under the auspices/responsibility of an international organisation and, if yes, which one. Provide a link to information on quantities of sampled stored by species/stock, geographic sub-area and by year.

NIMRD Constanta is responsible for the storage of the samples of the different species and the samples are not stored under the auspices/responsibility of an international organisation. Part of samples (already processed) are frozen and kept for internal data quality checks.

Sample analysis: *Provide a brief description or references to documents, including links to webpages (e.g. age reading manuals, EGs reports and protocols) if appropriate, where information on the processing of the samples is provided.*

Information about the sample analysis is available in the following documents available at http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click ton indicated link*)
Paolo Carpentieri, 2019 - *Monitoring incidental catch of vulnerable species in the Mediterranean and the*

Black Sea: methodology for data collection;
Paolo Carpentieri, Aurora Nastasi, Margherita Sessa, Abdellah Srour, 2020 - *Incidental catch of vulnerable species in Mediterranean and the Black Sea fisheries a review;*
Jacques Sacchi - *Overview of mitigation measures to reduce the incidental catch of vulnerable species in fisheries*

AR comment: No deviations

Data processing

Evaluation of data accuracy (bias and precision): *Indicate with 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the evaluation of data accuracy exists, provide some details in the textbox.*

Y

Information about the data accuracy is available in the following documents available at http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidental_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click ton indicated link*);
The precision of the sampling program is based on the requirements of the following reports:
"Sampling Calculation and Methodology for Fisheries Data" (WKSCMFD) (ICES 2004) - https://www.ices.dk/sites/pub/CM%20Doccuments/2004/ACFM/ACFM1204.pdf and *Report of the Study Group on Practical Implementation of Discard Sampling Plans* (SGPIDS) (ICES, 2011a) - https://www.ices.dk/community/Documents/PGCCDBS/SGPIDS%202011.pdf.

The morphometric relationships between the biological parameters - total weight (TW), shell length (SL), shell width (Wd), aperture length (AL) are analysed on the basis of classical allometric models. The least squares method will be used to estimate the linear - weight relationships (LWR), based on the following equation:
$W=a\times L^{\wedge b}$, where, W – weight; L – length; a, b – constants.
The XLSTAT software is be used to display the linear-weight histograms of the samples from the *Rapana* landings. The statistical data about the different length and weight classes, presented in the histograms, include lower and upper limits, frequency, relative frequency, and density.
Summarized statistics (Mean values, Standard Error, Median, Mode, Standard Deviation, Sample Variance, Kurtosis, Skewness, Range, Minimum, Maximum, Confidence Level, 95.0%) about the measured biological parameters of *Rapana* by ports - Total weight (TW - weight with shell, TW, g), body weight (BW, g), % of BW from TW, shell length (shell length, SL, mm), shell width (Wd, mm) and aperture length (AL, mm) will be presented separately, where relevant.

Editing and imputation methods: *Indicate 'Y' (yes) or 'N' (no). If 'N' (no), indicate when (year) documentation will be available. Provide a link to a webpage where the documentation can be found. If no link is available, but documentation exists, provide a literature reference (author(s), year and type of publication - e.g. internal report). If no documentation on the editing and imputation methods exists, provide some details in the textbox*.

Y

Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta, including all steps from data collection and analysis to final reporting. All data, collected in the sea, are included in protocols and checked by a different number of scientists in institute for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. If any corrections are needed, they are presented in separate protocols, controlled by two scientists in institut. Editing and imputation of the technical and scientific reports is being conducted by 3 members of the scientific team. The documentation is (http://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en - Collection Methodology (*Ctrl + Click ton indicated link*)

Quality document associated to a dataset: *Has a publication digital object identifier (DOI) been created? Is there a document summarising the estimation process that has been followed*?

The documentation is available at:
http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incide

ntal_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click ton indicated link*) **Validation of the final dataset:** How are datasets validated (quality checked) before being provided to the end user? Internal rules for Data Quality Control (DQC) and Data Quality Assurance (DQA) are applied in NIMRD Constanta, including all steps from data collection and analysis to final reporting. All data, collected in the sea, are included in protocols and checked by a different number of scientists in institute for mistakes (scientist and expedition leader) and all samples are numbered and identified by given rules. Editing and imputation of the technical and scientific reports is being conducted by 3 members of the scientific team http://www.rmri.ro/Home/Downloads/Publications.Other/ANPA/InternationalMethods/Monitoring_the_incidentntal_catch_of_vulnerable_species_in_Mediterranean_and_Black_Sea_fisheries.pdf (*Ctrl + Click ton indicated link*).
AR comment: No deviations

ANNEX 1.2 - QUALITY REPORT FOR SOCIOECONOMIC DATA SAMPLING SCHEME

The quality report fulfils Article 6 (3) (d) of Regulation (EU) 2017/1004. This document is intended to specify data to be collected under Chapter II, points 3, 5, 6, and 7 of the Delegated Decision annexes: 'Socioeconomic data on fisheries, aquaculture and any complementary data collection of fishing activity and fish processing'. Use this annex to describe quality aspects of the data collection process (design, sampling implementation, data capture, data storage and data processing etc.). The annex should be filled for each sampling scheme. Where applicable, use the handbook on sampling design (Deliverable 2.1 from MARE/2016/22 SECFISH study), available on the DCF website.

Fisheries

Survey Specifications
'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex. *'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.* *'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.* *'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.*
Sector name(s): Fisheries
Sampling scheme: Census
Variables: Economic and social
Supra region(s): Mediterranean and Black Sea
Survey planning
1. Provide a short description of the population to which the sampling scheme applies, *e.g.* '*less active*

vessels using passive gears'.

Socio-economic data are collected annually, with the support of NAFA, from all agents identified as having their main and secondary activity. The data collected cover the economic variables indicated in Table 7, in accordance with the segmentation provided in Table 8. The method of data collection is exhaustive, namely the census, the questionnaires being distributed to all companies active in the current monitored year. The collection method ensures a 100% coverage of the population.

AR comment: No deviations.

Survey design and strategy

1. List data sources; e.g. interviews, registers, log books, sales notes, VMS, financial accounts etc.

The main sources of economic and social data collection are the following documents: the questionnaire, fishing journal at the Black Sea and coastal areas, the fleet register, sale notes and transport notes.

2. Describe how the sample sizes were determined.

The main holders of economic and social data are the economic operators engaged in fishing on the Romanian coast of the Black Sea. In the orders issued by the Ministry of Agriculture and Rural Development they have an obligation to complete these data in fishing journals of the Black Sea and the coastline, sale notes, transport notes and questionnaire

3. Describe survey methods and distribution; e.g. questionnaire forms by post, by email, on website, by phone etc. access to other datasets etc.

The data collection in the landing sites, nominated by NAFA, among the Black Sea coast, is done by NAFA staff. For the conformity of fishery data, inspectors confront fishing journals with the sale notes and transport notes. If these data are not in correlation, the necessary corrections are performed.

Elaboration of the Questionnaire content is conducted by research staff of NIMRD, in collaboration with NAFA staff with strict compliance of the notice of all economic and social data requested in Decision (EU) 1251/2016, 910/2019 and 1167/2021. After completion of the final form of the questionnaire, it is distributed by NAFA inspectors to each economic agent that has the obligation to complete all available data depending on the complexity of the activities performed, after drawing up the balance. Finally, NAFA inspectors give these questionnaires to the research team of NIMRD, who verify the data and they contact the NAFA inspectors and the economic operators when there are certain ambiguities in order to correct them.

4. Describe the role of auxiliary information, if any, in the strategy: e.g. for validation, cross referencing, fall back data source etc.

NA.

AR comment: No deviations.

Estimation design

1. Describe method of calculating population estimate from sample.

The calculation of these variables, for the active vessels, respect the instructions indicated in the Table 7 of the multiannual program of the Union [Decision (EU) 2021/1167] and is be based on the figures obtained through questionnaire and other sources, from the owners of the fishing units by the inspectors of NAFA and the provisions of the national fishing legislation.

2. Describe method of calculating derived data: e.g. imputed values.

The data are collected from all economic operators. In such a case, the data collection method is exhaustive and the resulting assessment is census. As per national legislation, the captain has the obligation to fulfil the coastal logbook for each fishing operation, including the no. of hours, no. and type of gears, the fishing area and the catches per species, live weight and prices of sales (sales notes).

Information are obtained by NAFA local branch personnel, weekly/ monthly, by taking over from the authorized operators/ license owners the records regarding: species/ products accomplished quantity (kg live weight) and the average price for sale in order to inform the national authorities responsible in the field and international fora.

3. Describe treatment of nonresponse.

Transmition of data is mandatory according to the national legislation.

AR comment: No deviations.

Error checks

1. Describe potential errors and how and where in the process these are detected, avoided or eliminated e.g., data; duplication, double counting, respondent error, upload error, processing error etc.

Data reliability/control verification by comparing data with other sources, as a statistical rule, is made by cross-checking the documents requested at branch level by local inspector and the person specialized in centralizing data. The second stage takes place in NIMRD - the figures are verified by staff processing data (a cross-check of all data provided by economic operators, NAFA and the Ministry of Finance), who is responsible with submitting the information to the centralized database - NDCP Romania.

AR comment: No deviations.

Data storage and documentation

1. Describe how the data is stored.

Collected data stored in the NIMRD database.

2. Provide link to webpage where additional methodological documentation can be found, if any.

https://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en%20

AR comment: No deviations.

Revision

1. Describe the frequency of the methodology review e.g., revision of; segmentation, survey method per segment, per variable etc.

The working methodology is revised as often as necessary in accordance with the regulation requirements for the current year and for its improvement.

AR comment: No deviations.

Confidentiality

1. Are procedures for confidential data handling in place and documented?

Management and use of data comply with Regulation 199/2008 (art. 17-20) regarding the sending and availability of data.

2. Are protocols to enforce confidentiality between DCF partners in place and documented?

No

3. Are protocols to enforce confidentiality with external users in place and documented?

No

4. Are there any issues with publication of data due to confidentiality reasons? Provide an explanation.

No

AR comment: No deviations.

Aquaculture

Survey Specifications

'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex.
'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.
'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.
'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.

Sector name(s): Aquaculture

Sampling scheme: Census

Variables: Economic and social

Supra region(s): Mediterranean and Black Sea

Survey planning

1. Provide a short description of the population to which the sampling scheme applies, *e.g.* '*less active vessels using passive gears*'.

Socio-economic data are collected annually, with the support of NAFA, from all agents identified as having their main and secondary activity – Aquaculture according to NACE 0322.

AR comment: No deviations.

Survey design and strategy

1. List data sources; e.g. interviews, registers, log books, sales notes, VMS, financial accounts etc.

The source of the socio-economic data for the aquaculture segment is the questionnaire.

2. Describe how the sample sizes were determined.

Active farms from RUA.

3. Describe survey methods and distribution; e.g. questionnaire forms by post, by email, on website, by phone etc. access to other datasets etc.

The telephone or personal interview at the unit's headquarters has the role of verifying data correctness and their

correlation. Interviews are conducted at aquaculture economic units assigned to the NAFA regional branches: Moldova, Muntenia, Oltenia, Transylvania, and the Maritime Directorate - Constanța Department, as well as the Danube Delta Inspection Service. If the companies will not allow access to this information or if data is incomplete, figures registered and declared to the authorities of the fiscal body will be used, respectively the website of the Ministry of Public Finance (information from the balance report of economic agents).

4. Describe the role of auxiliary information, if any, in the strategy: e.g. for validation, cross referencing, fall back data source etc.

NA.

AR comment: No deviations.

Estimation design

1. Describe method of calculating population estimate from sample.

The method of data collection is exhaustive, namely the census, the questionnaires being distributed to all companies active in the current monitored year.

2. Describe method of calculating derived data: e.g. imputed values.

If there are any ambiguities regarding economic or production indicators, the data providers (accountants or administrators of the economic agents) are contacted in order to make clarifications or corrections if necessary.

3. Describe treatment of nonresponse.

Transmition of data is mandatory according to the national legislation.

AR comment: No deviations.

Error checks

1. Describe potential errors and how and where in the process these are detected, avoided or eliminated e.g., data; duplication, double counting, respondent error, upload error, processing error etc.

Data reliability/control verification by comparing data with other sources, as a statistical rule, is made by cross-checking the documents requested at branch level by local inspector and the person specialized in centralizing data.

AR comment: No deviations.

Data storage and documentation

1. Describe how the data is stored.

Collected data stored in the NIMRD database.

2. Provide link to webpage where additional methodological documentation can be found, if any.

https://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en%20

https://asas-icdeapa.ro/proj/Procedura-Manual-EN.pdf

AR comment: No deviations.
Revision
1. Describe the frequency of the methodology review e.g., revision of; segmentation, survey method per segment, per variable etc. The working methodology is revised as often as necessary in accordance with the regulation requirements for the current year and for its improvement.
AR comment: No deviations.
Confidentiality
1. Are procedures for confidential data handling in place and documented? Management and use of data comply with Regulation 199/2008 (art. 17-20) regarding the sending and availability of data. 2. Are protocols to enforce confidentiality between DCF partners in place and documented? No 3. Are protocols to enforce confidentiality with external users in place and documented? No 4. Are there any issues with publication of data due to confidentiality reasons? Provide an explanation. No
AR comment: No deviations.

Fish processing

Survey Specifications
'Sector name' refers to socio economic data on fisheries, aquaculture and any complementary data collection of fishing activity and processing as given in the EU MAP Delegated Decision annex. *'Sampling scheme' refers to survey technique: by census, by sampling, random or non-random, other (with explanation). If sampling, then outline sampling design.* *'Variables' refer to Tables 7, 9 and 10 of the EU MAP Delegated Decision annex.* *'Supra region' refers to Table 2 of the EU MAP Implementing Decision annex. If the sampling scheme is the same in all supra regions put 'All supra regions'.*
Sector name(s): Fish processing
Sampling scheme: Census
Variables: Economic and social
Supra region(s): Mediterranean and Black Sea
Survey planning
1. Provide a short description of the population to which the sampling scheme applies, *e.g.* '*less active vessels using passive gears*'. Socio-economic data are collected annually, with the support of NAFA, from all economic operators identified

as having their main and secondary activity - Processing and preserving of fish, crustaceans and molluscs, according to NACE 1020. The method of data collection is exhaustive, namely the census, the questionnaires being distributed to all companies active in the current monitored year. The collection method ensures a 100% coverage of the population.

AR comment: No deviations.

Survey design and strategy

1. List data sources; e.g. interviews, registers, log books, sales notes, VMS, financial accounts etc.

The source of the socio-economic data for the aquaculture segment is the questionnaire.

2. Describe how the sample sizes were determined.

The source of the socio-economic data for the processing segment is the questionnaire. The telephone or personal interview at the unit's headquarters has the role of verifying data correctness and their correlation.

If the companies will not allow access to this information or if data is incomplete, figures registered and declared to the authorities of the fiscal body will be used, respectively the website of the Ministry of Public Finance (information from the balance report of economic agents that process fish as their main or secondary activity).

3. Describe survey methods and distribution; e.g. questionnaire forms by post, by email, on website, by phone etc. access to other datasets etc.

The source of the socio-economic data for the processing segment is the questionnaire. The telephone or personal interview at the unit's headquarters has the role of verifying data correctness and their correlation.

If the companies will not allow access to this information or if data is incomplete, figures registered and declared to the authorities of the fiscal body will be used, respectively the website of the Ministry of Public Finance (information from the balance report of economic agents that process fish as their main or secondary activity).

4. Describe the role of auxiliary information, if any, in the strategy: e.g. for validation, cross referencing, fall back data source etc.

NA.

AR comment: No deviations.

Estimation design

1. Describe method of calculating population estimate from sample.

The method of data collection is exhaustive, namely the census, the questionnaires being distributed to all companies active in the current monitored year.

2. Describe method of calculating derived data: e.g. imputed values.

If there are any ambiguities regarding economic or production indicators, the data providers (accountants or administrators of the economic agents) are contacted in order to make clarifications or corrections if necessary.

If an economic, social or production variable has not been reported by a unit, it will be estimated by calculating the average resulting from the reporting of units of the same type (from the same segment) and size.

3. Describe treatment of nonresponse.

Transmition of data is mandatory according to the national legislation.

AR comment: No deviations.

Error checks

1. Describe potential errors and how and where in the process these are detected, avoided or eliminated e.g., data; duplication, double counting, respondent error, upload error, processing error etc.

Data reliability/control verification by comparing data with other sources, as a statistical rule, is made by cross-checking the documents requested at branch level by local inspector and the person specialized in centralizing data.

AR comment: No deviations.

Data storage and documentation

1. Describe how the data is stored.

Collected data stored in the NIMRD database.

2. Provide link to webpage where additional methodological documentation can be found, if any.

https://www.rmri.ro/Home/Publications.Other.ANPA.html?lang=en%20

https://asas-icdeapa.ro/proj/Procedura-Manual-EN.pdf

AR comment: No deviations.

Revision

1. Describe the frequency of the methodology review e.g., revision of; segmentation, survey method per segment, per variable etc.

The working methodology is revised as often as necessary in accordance with the regulation requirements for the current year and for its improvement.

AR comment: No deviations.

Confidentiality

1. Are procedures for confidential data handling in place and documented?

Management and use of data comply with Regulation 199/2008 (art. 17-20) regarding the sending and availability of data.

2. Are protocols to enforce confidentiality between DCF partners in place and documented?

No

3. Are protocols to enforce confidentiality with external users in place and documented?

No

4. Are there any issues with publication of data due to confidentiality reasons? Provide an explanation.

No

AR comment: No deviations.