



ЕВРОПЕЙСКИ СЪЮЗ

ЕВРОПЕЙСКИ ФОНД ЗА
МОРСКО ДЕЛО И РИБАРСТВО



МИНИСТЕРСТВО НА ЗЕМЕДЕЛИЕТО



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SURVEY REPORT

MARINE RECREATIONAL FISHING IN THE BLACK SEA



Contractor: „PLT CONSULT“ EOOD

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Project № BG14MFOP001-3.003-0003, „Pilot research on recreational fishing in the Black Sea, through a sociological study" financed by the Maritime and Fisheries Programme, co-financed by the European Maritime and Fisheries Fund.



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Abbreviations	Full name
EU	European Union
EC	European Community
NSI	National Statistical Institute
MRF	Marine Recreational Fishing
FAA	Fisheries and Aquaculture Act
CRR	Catch reporting
EAFA	Executive Agency Fisheries and Aquaculture
SFA	State Fund Agriculture

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The survey is part of activities carried out under project No. BG14MFOP001-3.003-0003, "Pilot research on recreational fishing in the Black Sea, through a sociological study" financed by the Maritime and Fisheries Programme, co-financed by the European Maritime and Fisheries Fund.

Introduction

The realization of the service includes activities for the implementation of Bulgarian Work Plan under the Data Collection Programme established by the implementation decision of the European Commission of 18.12.2020 approving the Bulgarian Work Plan for data collection in the Fisheries and Aquaculture sector for 2021. The activity will be implemented in accordance with the provisions of Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 of 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 and Commission Delegated Decision (EU) 2019/910 of 13 March 2019 establishing the multiannual Union Programme for the collection and management of biological, ecological, technical and socio-economic data in the Fisheries and Aquaculture sectors.

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The subject of the survey is gathering of detailed information on recreational fishing in the Black Sea, which will be provided to the European Commission, for the purposes of scientific analysis and decision-making processes for the Fisheries Sector in the Black Sea.

The implementation of the project will support the collection, management and use of data within the framework of the Bulgarian Programme for collection, management and use of data in the Fisheries sector 2020-2021, enabling the assessment of:

- share of the catch from recreational fishing in the Black Sea compared to the catch from commercial fishing in the Black Sea;
- the species composition of the marine biological resources exploited by recreational fishers in the Black Sea;
- the level of recreational fishing and the impact that fishing activities have on marine biological resources and marine ecosystems;
- the main methods by which they exercise their activity.

Object of survey:

The object of the survey is recreational fishers practicing marine fishing (according to the Implementation of Fisheries and Aquaculture Act) in the Black Sea, and the survey will be conducted on the basis of a representative sample of 1 000 respondents on the territory of the country.

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Scope of the survey:

Factors. The research covers and analyzes information in the following areas and activities, and in details, the planned activity consists of:

- The total number of recreational fishers in Bulgaria who practice recreational fishing in the Black Sea;
- What are the most visited places by recreational fishers (cities, ports, resort villages) engaged in recreational fishing in the Black Sea;
- Which fishing methods (boat fishing, shore fishing or harpoon fishing, diving) are the most commonly used by recreational fishers in the Black Sea;
- Which gear (fishing rods, harpoon, etc.) are most often used in recreational fishing in the Black Sea;
- What is the total number of days during which recreational fishing was practiced in the Black Sea for each of the interviewees and in total for all fishers for one calendar year;
- What are the species of fish and/or other marine organisms that are most often caught by recreational fishers practicing recreational fisheries in the Black Sea;
- The total quantity of fish and/or other marine organisms - by species, caught by recreational fishers practicing recreational fisheries in the Black Sea for one calendar year;

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- Shares of catches (by species) from recreational fishing in the Black Sea compared to catches (by species) from commercial fishing in the Black Sea for one year.

Sources of Information

1. The Data Collection Programme established by the implementation decision of the European Commission of 18.12.2020 approving Bulgarian Work Plan for data collection in the fisheries and aquaculture sector for 2021;
2. Regulation (EU) Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 of 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;
3. Commission Delegated Decision (EU) 2019/910 of 13 March 2019 establishment the multiannual Union program for the collection and management of biological, environmental, technical and socio-economic data in the sectors of fisheries and aquaculture;
4. NSI;
5. State Fund Agriculture;
6. Executive Agency for Fisheries and Aquaculture;
7. Own sources, etc. institutional data.

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Survey methodology

Method of data collection (type of the survey): The method of data collection has been carefully chosen in order to ensure the opinion of citizens from all regions of the country could be taken into account, regardless of their level of economic development. An appropriate method of obtaining information is a telephone survey with a nationally representative sample, which ensures objectivity, reliability and validity.

Objective: Establishing the attitudes and awareness of the target groups (respondents) about:

- the number of recreational sea fishers, etc.

Target group: the adult population in the country

Sample size: 1000 people

Sampling methodology: Representative, quota sample, random sample, stratified by the place of residence. The maximum expected error in the most unfavorable situation (at 50% relative shares) will be about 3%, which is enough for drawing reliable conclusions.

Sampling plan: Three-stage nested design, with probabilities proportional to the size of different municipalities. The method (according to Leslie Kish) was used for sampling plan.

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- On the first stage is selected the area with probabilities proportional to the number of people living there.
- On the second stage, the nests in the respective settlement are selected.
- On the third stage, the starting addresses / telephone numbers of the households from which the respondents will be chosen are randomly selected.

The selection of the respondents within the targeted household (after age screening) is performed by a Kish selection grid (method of the closest to having their next birthday). This approach ensures representativeness of the sample for the adult population of the country.

Registration Method:

The telephone survey method is appropriate for registration of the information and traditionally used in nationally representative surveys. This is a quantitative method for gathering information, in which the questions included in the questionnaire are asked to all participants in the survey in the same way, in a strictly defined manner. Thematically, the questionnaire is structured to gather empirical information on all issues, which are of interest to Executive Agency for Fisheries and Aquaculture.

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Toolkit:

- Questionnaires - preparation of a standardized questionnaire, which includes a set of questions that will measure the opinion and attitudes of citizens;
- Layout and printing of questionnaires, instructions, and other materials;
- Control questions for information verification;
- Instructions and training of interviewers;
- Pilot testing.

Period of implementation: 06-20 June 2022

Field work (current and subsequent quality control):

After the interviewer is selecting the appropriate person from the database, he/she asks him/her the questions from the questionnaire and registers the answers in the paper questionnaire. The interviewer asks the questions without changing their wording and sequence.

Field work monitoring

- ✓ First level - Field Assistants;
- ✓ Second level - Regional Team Leaders;
- ✓ Third level - Field Implementation Manager.

Field work monitoring activities:

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- ✓ daily report on the implementation - inspection through a specially dedicated coordinator (regional team leaders);
- ✓ control of the implementation - telephone conversation check with of 5% of the people (respondents) completed questionnaires from the sample;
- ✓ logical inspection, coding of 100% of the completed questionnaires from the samples and entering the data on electronic media (SPSS format).

Data processing and analysis:

- statistical analysis software platform SPSS11.0.

Data analysis: The primary data will be presented in tabular and graphical form.

The questions provide empirical information about:

1. The total number of recreational fishers in Bulgaria who practice recreational fishing in the Black Sea;
2. Which are the most visited places by recreational fishers engaged in recreational fishing in the Black Sea;
3. Which fishing methods (boat fishing, shore fishing or harpoon fishing, diving) are the most commonly used by recreational fishers in the Black Sea;
4. Which gear (fishing rods, harpoon, etc.) are often used in recreational fishing in the Black Sea;

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5. What is the total number of days during which recreational fishing was practiced in the Black Sea for each of the interviewees and in total for all fishers for one calendar year;
6. What are the species of fish and/or other marine organisms that are most often caught by recreational fishers exercising recreational fisheries in the Black Sea;
7. The total quantity of fish and/or other marine organisms, by species, caught by recreational fishers exercising recreational fisheries in the Black Sea for one calendar year;
8. Shares of catches (by species) from recreational fishing in the Black Sea compared to catches (by species) from commercial fishing in the Black Sea for one year.

Marine recreational fishing (MRF) is an activity with significant number of recreational fishers. In addition, it contributes to economic activity, as a carrier and creator of economic value and brings social benefits worldwide, although it falls into the so-called «unspecified economy», due to the lack of an established methodology for its measurement. Moreover, the MRF has an impact on some fish stocks and this requires its statistical reporting and measurement. Catch reporting (CRR) is a legislative requirement of the European Union, but estimates are currently only available for some countries. According to some estimates (Recreational sea fishing in Europe in a global context - Participation rates, fishing effort, expenditure, and implications for monitoring and

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assessment, First published: 16 November 2017, Vol.19, Issue2, March 2018, P. 225-243 <https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12251>),

approximately 8.7 million Europeans are involved in marine recreational fishing, representing 1.6% of the population. In addition, about 77.6 million days have been devoted by European marine recreational fishers to this activity, and the costs incurred are estimated at 5.9 billion euros per year. A greater number of fishers, more fishing days and more expenses were incurred by sea fishers in the Atlantic Ocean region than those in the Mediterranean and Black Sea basins. It should be noted, however, that MRF estimates in the Mediterranean region were generally less reliable. Comparisons with other regions show that European MRF participation and expenditure levels are in the middle range. Oceania and the US region have higher numbers of marine recreational fishers, higher spending in the United States, and lower numbers of marine recreational fishers and spending in the South American and African regions.

According to the respondents answered affirmatively to the question whether they are engaged in marine recreational fishing on the Bulgarian Black Sea coast, 2.2% of the adult population of Bulgaria over 18 years of age are engaged in recreational sea fishing (Figure 1). As a number, this part of the population is about 121 589 people. According to the research cited above (**Recreational sea fishing in Europe in a global context - Participation rates, fishing effort, expenditure, and implications for monitoring and assessment, First**

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published: 16 November 2017, Vol.19, Issue2, March 2018, P. 225-243

<https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12251>), the number of fishers engaged in MRF is about 300,000 and represents 2.7% of the country's population. However, the data are for 2014 and are derived based on the analogy method, with Greece as the reference country for comparison. These calculations were conducted with a population of Bulgaria of 7 246 000 people. If the obtained data are extrapolated to the data for the current population census, it turns out that the number of people dealing with MRF is 150 623 people according to the methodology of the above research, namely, in relation to the entire population of the country.

The methodology of the results of the sociological survey have been adapted to the indicated methodology, which enables comparability with the results obtained for other countries in the study from 2017. The conditions for this comparability are related to its implementation in different years (respectively data for 2014 and 2022) and the demographic data used (in the European study, the relative data are from the 2011 census, and in the current study, the demographic data from the 2021 census are used). It can be argued that these data approximate survey data and comparisons can be made with some degree of caution due to the differences noted above.

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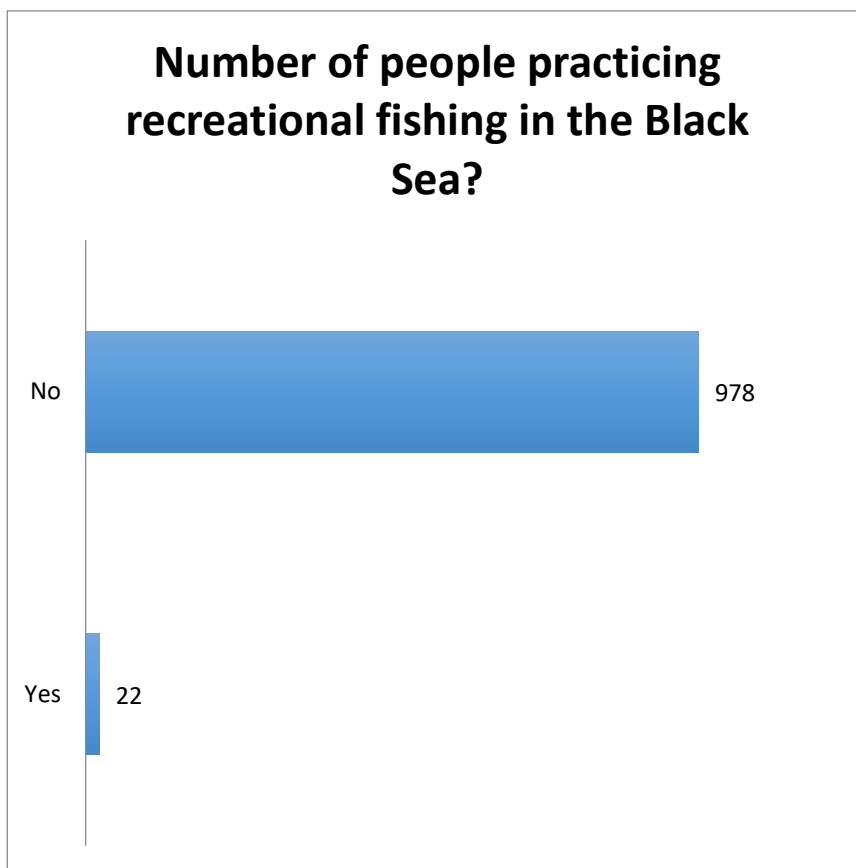


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Figure 1



It should also be mentioned the long-term experience of the fishers engaged in fishing activities (Figure 2 and Table 1) on the Bulgarian Black Sea coast. The number of long-term fishers (over 15 years) is the largest. Almost 1/3 of the respondents catch recreational fish along the Bulgarian Black Sea coast (31.8%), or that is about 38 690 fishers. With a long experience (between 10 and 15 years) there are approximately 33 157 recreational fishers, between 5 and 10 years – 27 637 fishers, from 1 to 5 years – 16 573 fishers and up to 1 year – 5 532 sea fishers.

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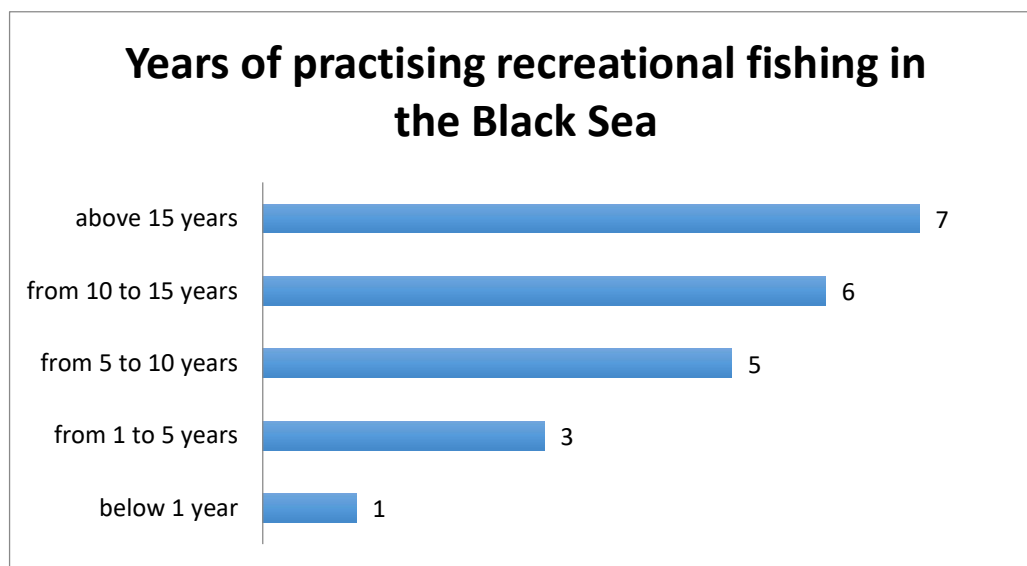
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The larger number of marine recreational fishers with longer fishing experience on the Bulgarian Black Sea coast is probably due to the fact that people in the older age groups on the one hand have more opportunities, such as time and financial resources, for activities related to recreational fishing, and on the other hand, it is part of the way of recreation and recovery that has become their hobby. The younger generation has more work, parental, etc. commitments, as well as hobbies related more to the virtual world, social networks and electronic games.

Figure 2



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Table 1. Experience in recreational fishing

Experience (years)	Percent (to total number of fishers)	Number of fishers
Up to 1	4.55%	5 532
From 1 to 5	13.63%	16 573
From 5 to 10	22.73%	27 637
From 10 to 15	27.27%	33 157
Above 15	31.82%	38 690

When respondents are asked to identify the geographical distribution of recreational fishers engaged in marine fishing, it turns out that they are roughly distributed according to the results of the last population census of 2021, according to which 83.12% of Bulgarians live in cities, and the rest – 16.88% in villages. According to the responses of the survey respondents to the question "Which town do you live in?", 72.73% of sea fishing enthusiasts identified themselves as living in cities and the rest - 27.27% in villages (see Tabl.2). In absolute numbers, this means that 88 432 fishers engaged in recreational fishing on the Bulgarian Black Sea coast live in cities, and 33 157 people engaged in fishing activities are from villages. Only 1/3 of the respondents indicated a specific settlement, municipality and region, and these are mainly residents of the large regional cities - Sofia, Varna, Burgas, Plovdiv, Stara Zagora, Sozopol and Shumen.

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Table 2. Geographical distribution of marine recreational fishers

Place	Total number of recreational fishers	% (of the total number of recreational fishers)
<i>City</i>	88 432	72,73
<i>Village</i>	33 157	27,27

Most respondents prefer recreational fishing along the coast of the Southern Black Sea coast (54.5% of respondents). The most desired places for MRF are the area of the Burgas Bay, Primorsko, Chernomorets, Kiten - the mouth of the Dyavolska River, Rezovo and Tsarevo. The remaining respondents (45.5% of the surveyed) carry out recreational marine fishing along the Northern Black Sea coast, with favourite locations Balchik, Varna Bay, Kavarna, Obzor and Bulgarevo. It is interesting that none of the respondents indicated that they fish on the Southern and Northern Black Sea coasts, which shows a certain "adherence" to the places where they carry out recreational marine fishing.

Table 3. Favorite places for recreational marine fishing in the Black sea

Places for recreational fishing	Percent(%) – to total amount of fishers
North Black Sea	45,5%
South Black Sea	54,5%
Concrete place	72,73%

Note: Percentages exceed 100 because some respondents indicated more than one answer. Almost 2/3 of the respondents indicated a specific location (town, port, resort village). It should also be noted that at the beginning of November,

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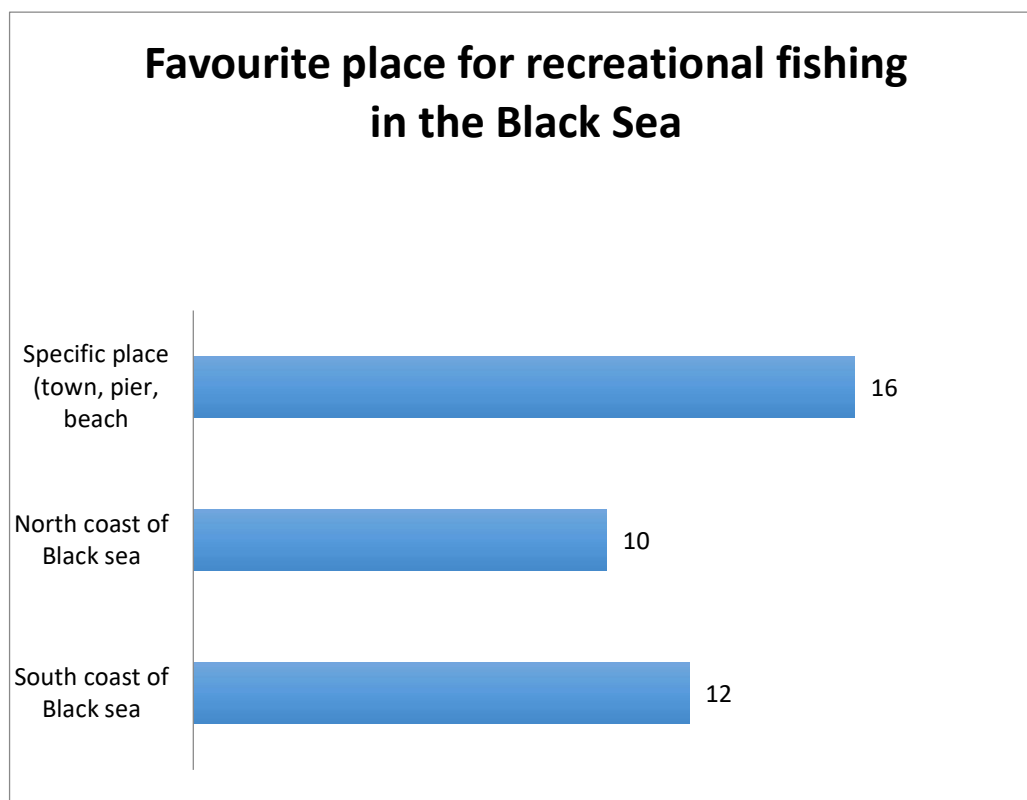
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the most fish are found on the Southern Black Sea coast. Thus, the most fishers are concentrated there. At this time of the year, even people from Varna go to the southern Black Sea coast to fish.

Figure 3



All respondents indicated that they practice marine fishing with answers firmly to the question if they engage in sea fishing every year. This shows that they all perceive it as a permanent occupation and commitment that satisfies their needs for recreation and tourism. Almost 2/3 (72.7%) of the respondents fish on the Bulgarian Black Sea coast in all seasons. In the summer and autumn, 22.7% of

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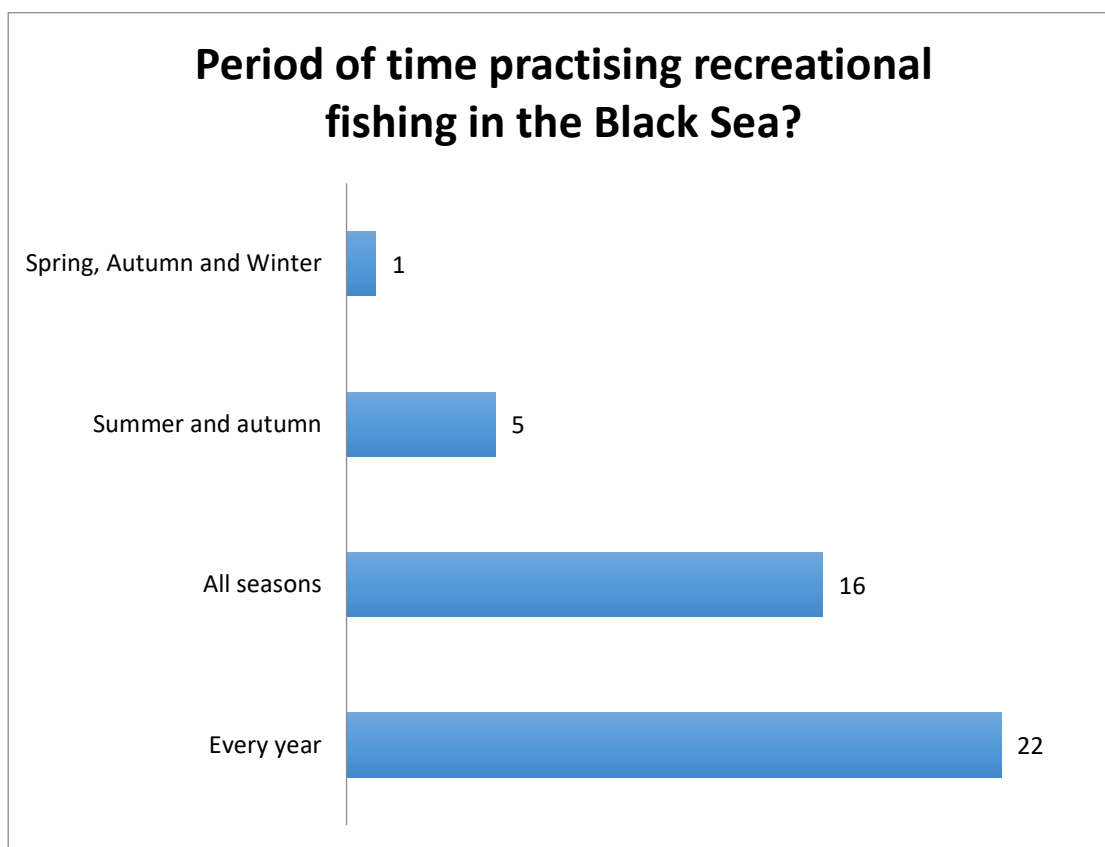


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the respondents performed MRF. On the one hand, this coincides with the holiday season, and on the other hand, late autumn is considered the best time for sea fishing, taking into account the specifics of the Black Sea and migratory fish species.

Only 4.6% of respondents carry out MRF in spring, autumn and winter. Some of the respondents also specified specific months, most often the months of June, September, October and November.

Figure 4



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МОРСКО ДЕЛО И РИБАРСТВО



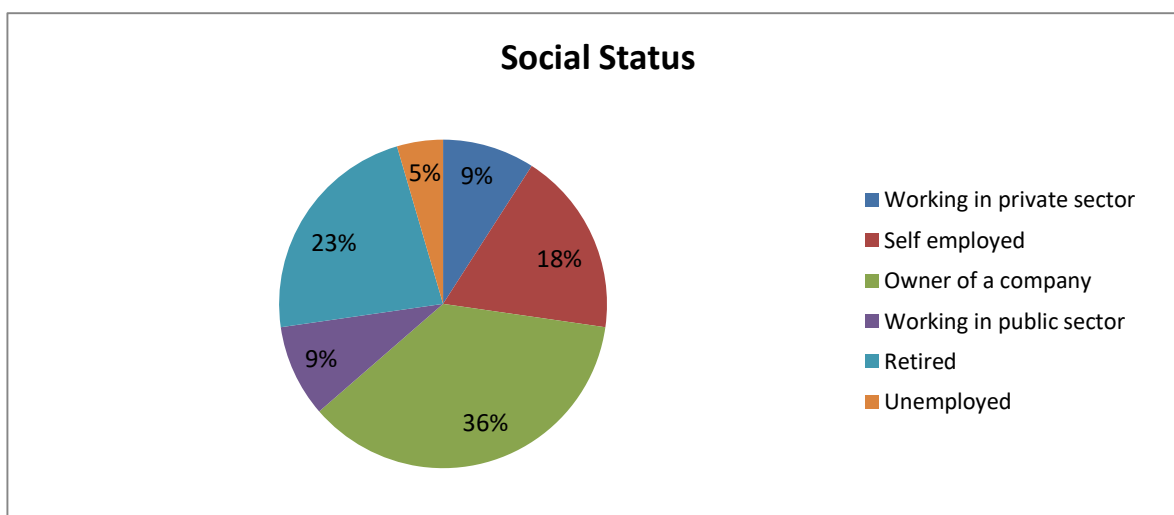
МИНИСТЕРСТВО НА ЗЕМЕДЕЛИЕТО



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Regarding the social and labor status, most recreational fishers (more than 1/3 of the respondents or 36% of them) on our Black Sea coast are engaged in their own business, which allows them to have greater financial and time freedom for fishing. 23% of respondents are retired, and the detection (age control question) with the last question 14 shows a discrepancy, but after reviewing the survey cards, it was found that the same respondent listed both "retired" and business owner as status. The self-employed also have a significant share (18%) in terms of social and labor status. Employed in the private sector and government employees each represent 9% of the total number of those who answered affirmatively that they are engaged in MRF. The unemployed are only 5%, which is understandable from the point of view of the financial provision of the trip to the Black Sea coast.

Figure 5



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According to the results obtained from the conducted survey, it turns out that the practice of all the main ways of sea fishing (See the answers on the next Fig. 6 and Table 4) also reflects on the use of all the main fishing devices when practicing MRF in the Black Sea sea. The answers are more than one because some of the anglers, depending on the method of fishing, use more than one of the conventional fishing gears depending on the type of fish that they wish to catch.

Table 4. Basic fishing gears for marine recreational fishing in the the Black Sea

Basic fishing gears	Percent (%) to total number of fishers	Number of fishers
Fishing rods with a single hook or lure	81,82%	99 484
Fishing rods with tentacles	40,91%	49 742
Harpoon	9,09%	11 052

Note: Percentages exceed 100 because some respondents indicated more than one answer.

In general, almost everyone uses fishing rods, except for one of the harpooners, who stated that he only spearfished. 81.82% of those who use fishing rods when exercising MRF use fishing rods with a single hook or bait, and 40.91% - fishing rods with tentacles. Only 9,09% of those practicing MRF use a harpoon for fishing in the Black Sea, and some combine it with a fishing rod. This is 11 052

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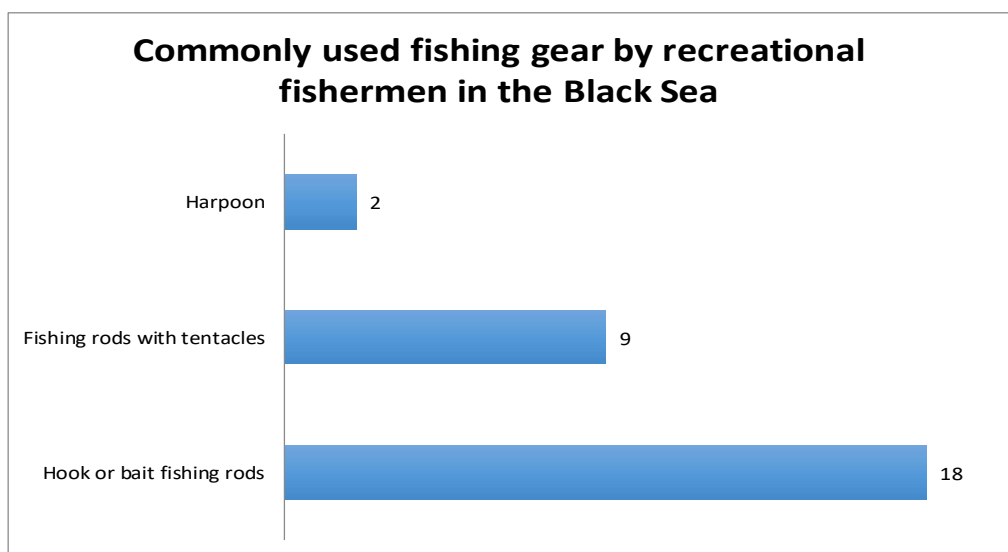
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people out of the total number of fishers engaged in marine recreational fishing, of which half also do fishing with a rod.

Figure 6



Picture 1. Fishing rod with tentacles

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The surveyed marine recreational fishers use all fishing methods carried out in the Black Sea. Some of them combine the different methods of fishing (by boat and from shore). Over 80% of recreational fishers on the Bulgarian Black Sea coast catch fish from the shore. Fishing with a boat is carried out by just over 54% of recreational fishers, which is natural, as it requires more financial resources, at least related to the acquisition or rental of the boats. Spearfishing with a harpoon or by diving method (scuba diving) is practiced by 9% of the respondents who practice MRF. It should be noted that underwater fishing by both methods is combined by fans of this method of fishing in the Black Sea.

Usually during the months of September, October and November, when the autumn migration of fish occurs, when the sea is slight (wave height from 0.5 to 1.25 meters), successful spearfishing can be practiced. The reefs are also good for fishing, which are not far along the Bulgarian coast, in other words, these are rocks that continue into the sea up to 200-300 meters with a water depth 2 to 10 meters. Spearfishing is practiced in these places until the water temperature drops to 14 degrees, and in some years there are exceptions and it is possible to fish below this temperature. All this, together with the financial limitations regarding equipment for underwater fishing predetermines the smaller number of persons (fishers) using this method of fishing in the Black Sea. In the "others" section, a hobby fisher listed the use of a cap, claw, and tongs.

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Figure 7

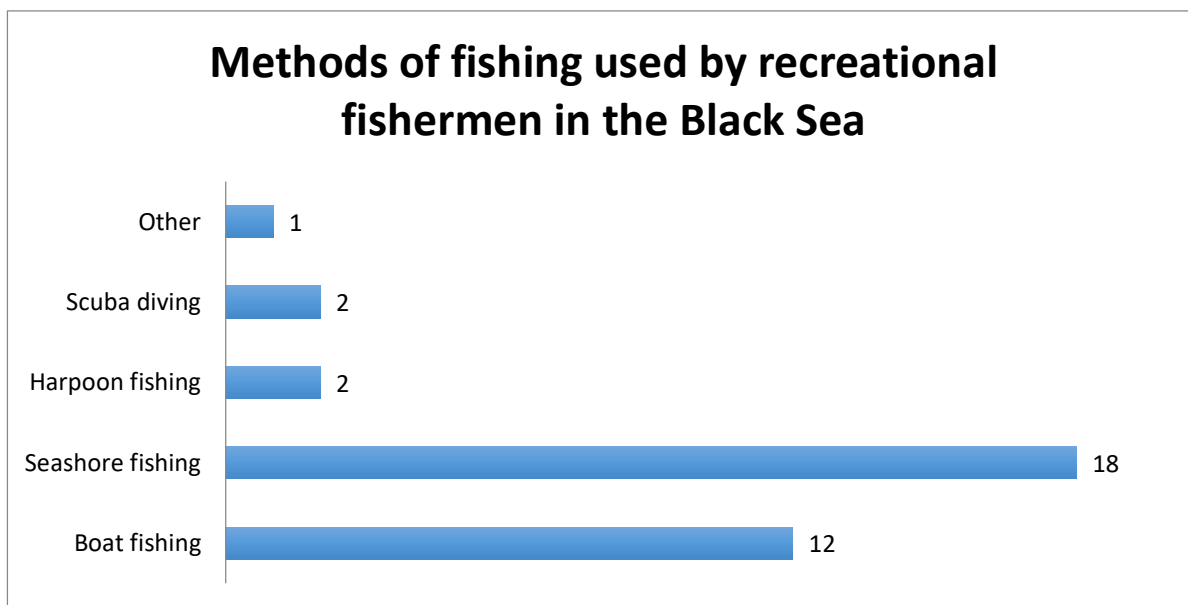


Table 5. Methods of fishing used by recreational fishers in the Black Sea

Methods of fishing	% to total number of fishers	Number of fishers
Boat fishing	54.55	66,327
Seashore fishing	81.82	99,484
Harpoon fishing	9.09	11,052
Scuba diving	9.09	11,052
Other	4.55	5,532

Note: Percentages exceed 100 because some respondents indicated more than one answer.

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Interesting topics related to recreational sea fishing is how many days are spent catching fish in the Black Sea by recreational fishers. Based on the answers received from the respondents, fishers practice recreational fishing on average 11 days per year, which extrapolated for all is a total 1 337 479 days per year. According to the cited study, using the method of analogy (Bulgaria is equal to Italy in this indicator), the Bulgarian marine recreational fishers practice it 6 days per year on average, which makes a total of 1,800,000 days a year. (Recreational sea fishing in Europe in a global context - Participation rates, fishing effort, expenditure, and implications for monitoring and assessment, First published: 16 November 2017, Vol.19, Issue2, March 2018, P. 231, <https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12251>),

The diversity of Black Sea fish catches by recreational fishermen is confirmed by the survey results. The most preferred fish for MLR is the flounder, with about 90% of respondents reporting this. The Gobies nei is missing only in the assortment of amateur fishermen engaged in spearfishing. Other fish preferred by amateur fishermen as objects of fishing are Mediterranean horse mackerel, mullet, and bluefish, and more than 50% of the respondents named them.

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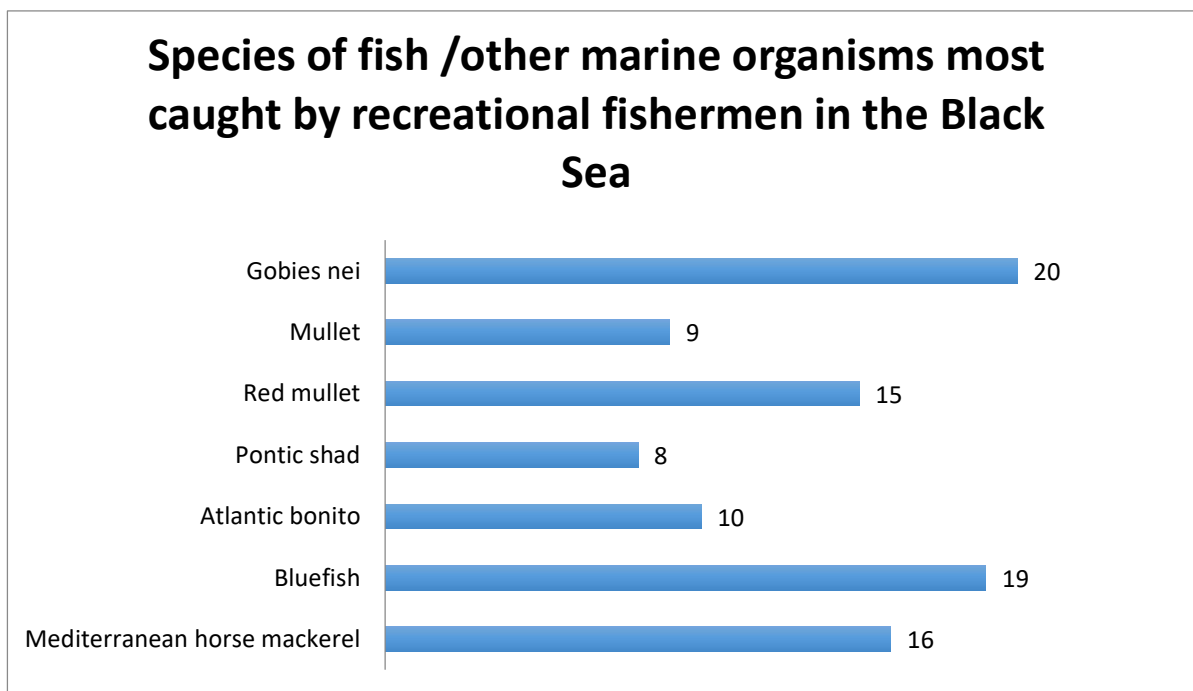


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Figure 8



The gathered data from the survey appears that the average annual catch of fish by recreational fishers along the Bulgarian Black Sea coast amounts to 5 kg. per person, making a total of 607 945 kg. For comparison, in Greece, according to a study carried out in 2019, the total catch was 9,350 t per year (Anastasios Papadopoulos, Konstantinos Touloumis, Emmanouil Tziolas, Dimitrios Boulamatsis and Emmanouil Koutrakis, Evaluation of Marine Recreational Fisheries and Their Relation to Sustainability of Fisheries Resources in Greece, <https://www.mdpi.com/2071-1050/14/7/3824/pdf>)

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Table 6. Catches of fish in the Black sea

Catch/kg	Percent to the total amount of fishers	Total amount of fishers	Total catch by categories (kg)
below 5 kg.	81.82%	99 484	497 421
from 5 to 15 kg	13.64%	16 585	82 924
15 to 50 kg	4.54%	5 520	27 600

Also of importance is the comparison between commercial and recreational catches. The official information refers to 2021:

- In 2021, commercial fishing in the Black Sea was practiced by 1,182 fishing vessels;
- Of these 1,182 vessels, 1,083 vessels are small-scale fishing fleets (these are boats under 12 meters that have used passive fishing gear). These ships unloaded 1,777,593.13 kg. fish and other marine organisms, and spent 14,249 days at sea;
- The remaining 99 fishing vessels from the Bulgarian fishing fleet are vessels over 12 meters and vessels under 12 meters that used active fishing gear. These ships unloaded 7,141,491.73 kg. fish and other marine organisms, and spent 8,791 days at sea.

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If we compare the total amount of marine fish caught by recreational anglers with the total amount caught by the fishing fleet, as well as with the amount caught by small-scale fisheries that could compete with recreational anglers, especially those practicing recreational fishing from boats, we get following results:

- Marine recreational catches is about 34.20% of the reported small-scale coastal fisheries catch. These data are comparable to the results obtained from the Greek study cited above (Anastasios Papadopoulos, Konstantinos Touloumis, Emmanouil Tziolas, Dimitrios Boulamatsis and Emmanouil Koutrakis, Evaluation of Marine Recreational Fisheries and Their Relation to Sustainability of Fisheries Resources in Greece, [https:// www.mdpi.com/2071-1050/14/7/3824/pdf](https://www.mdpi.com/2071-1050/14/7/3824/pdf)), where marine recreational catches account for a third of the reported catches of small-scale coastal fisheries;
- The comparability of recreational fishing with the total catch of the fishing fleet is a carrier of less information, but it gives some insight into the overall catch of fish in the Black Sea, which is essential for the conservation of marine life. The data show that recreational marine fisheries as a quantity of fish caught represent 8.51% of commercial fisheries (excluding small-scale coastal fisheries). If we add it as well, then the MRF is only 6.82% of the total commercial fishing.

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Table 7. Caught fish from recreational fisheries by species (and comparison to the commercial fisheries)

Species	Recreational fishing (kg.)	Commercial landings in 2021 (kg.)	Percentage ratio of recreational fishing to commercial fishing
Gobies nei	36 680	32 431,38	113,10%
Mullet (Flathead grey mullet, So-iuy mullet, etc.)	2 300	6 902,30	33,32%
Red mullet	83 600	445 406,40	18,77%
Pontic shad	5 200	22 579,85	23.03%
Atlantic bonito	800	1483,00	53.94%
Bluefish	127 200	302 106,65	42.10%
Mediterranean horse mackerel	147 400	274 080,80	53.78%
Total:	403 180*	1 084 990,30	

*This difference of 204,765 kg. in the table above compared to the total caught fish from recreational fishing 607,945 kg. is due to several reasons: 1) Respondents who indicated a catch of fish up to 5 kg. only total is

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declared without distribution by fish species; 2) The extrapolation of the reported fish catches by species is only in relation to the respondents who have indicated this, and not to the entire population.

From April 15 to May 15, it is not allowed to catch *Gobies nei* with net fishing gear in the Black Sea. The commercial catch with net fishing gear is prohibited throughout the year in the water areas of ports and bunkers with a distance of one kilometer from the coastline. An exception is made for the so-called dalyan - uncovered pound net (*passive commercial fishing gear located in a certain part of water area and having a point of attachment on the seabed or on the shore*) hotspots and for fishers with a single sport rod in these areas. This is precisely the reason for the larger catch of *Gobies nei* in the MRF than in the commercial fishing.

According to the General conditions for fishing in the Republic of Bulgaria, which are governed under the Fisheries and Aquaculture Act (FAA) and according to the provision of Art. 23, a fishing license is not required for recreational fishing in the Black Sea. This predetermines the reasonable answer of 91% of the respondents that they have good access. Responses to limited access mostly relate to crossing private property to reach the shoreline.

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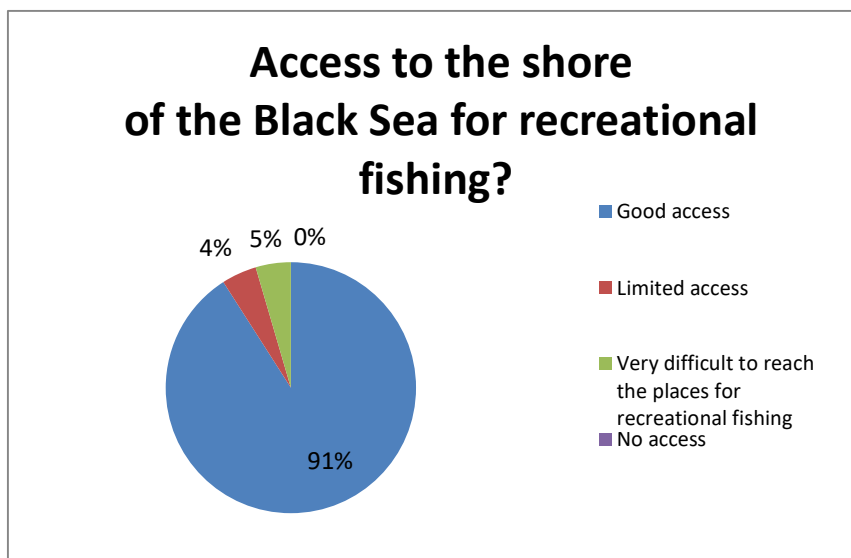


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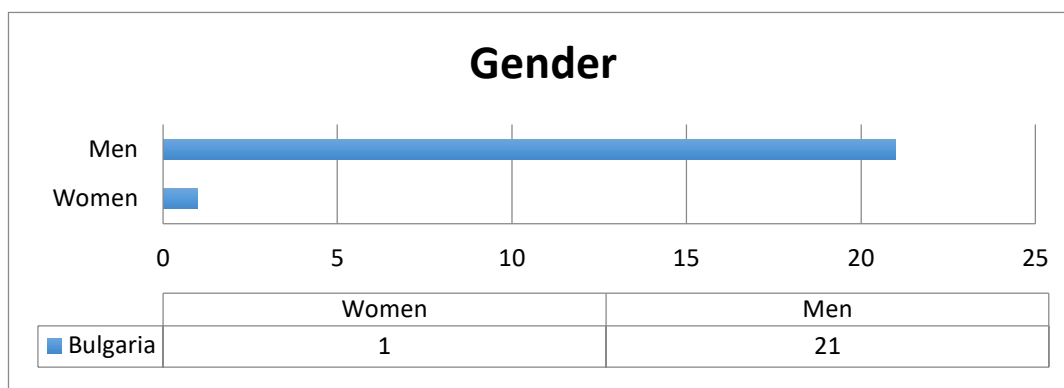
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Figure 9



Concerning the gender of recreational sea fishers engaged in fishing, it turns out that this activity is predominantly carried out by men (95.45% of the respondents who stated that they fish on the Bulgarian Black Sea coast).

Figure 10



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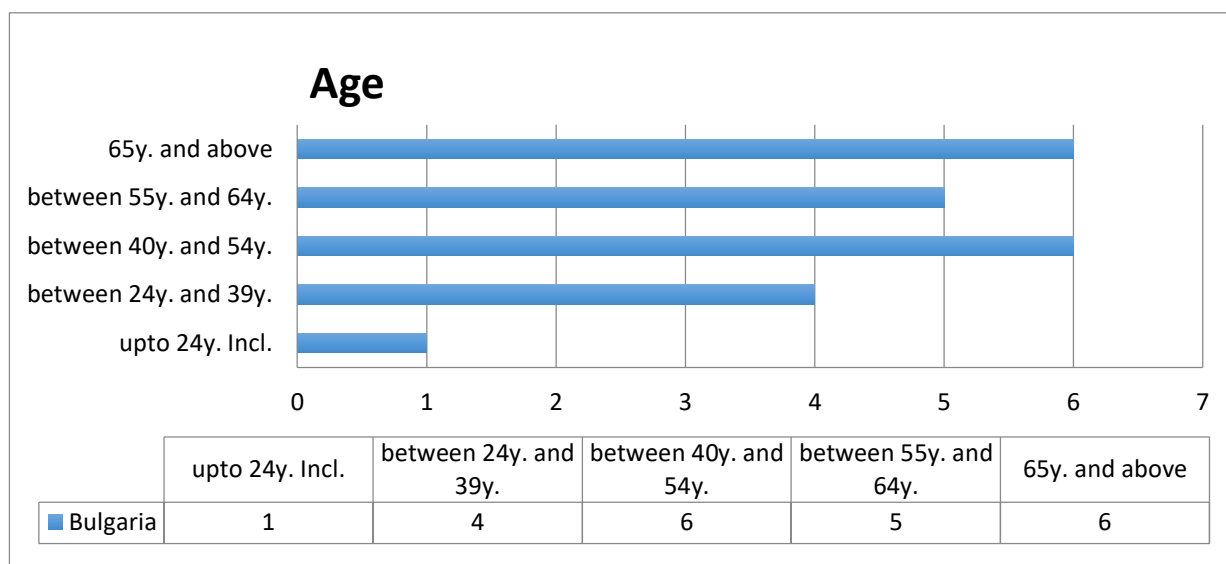
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Table 8. Gender

Gender	% (to total number of marine recreational fishers)	Number of marine recreational fishers
Men	95.45%	116 057
Women	4.55%	5 532

In most cases, marine recreational fishing is a kind of hobby and a way of recreation, which also predetermines a relatively even distribution of hobby fishers engaged in fishing concerning the age hierarchy. People between the ages of 25 and 64 age preferred marine recreational fishing as their hobby, varying between 18% and 27% for the four groups within this age range. For young people under 25, MRF is not a favorite occupation.

Figure 11



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Table 9. Age

Age	Percent to the total amount of fishers	Number of fishers
Below 24. incl.	4.55%	5 532
Between 25 and 39 y.	18.18%	22 105
Between 40 and 54 y.	27.27%	33 157
Between 55 and 64 y.	22.73%	27 637
65 y. and above	27.27%	33 157

Ultimately, the results of the survey show the social and economic importance of recreational fishing in Bulgaria and clearly demonstrate the need for a regular monitoring and fieldwork for proper assessment and sustainable management of the fish resources in the country.

CONCLUSIONS

1. The total number of recreational fishers in Bulgaria who practice recreational fishing in the Black Sea is **121 589**;
2. The most visited places by recreational fishers engaged in recreational fishing in the Black Sea are Dyavolska River, Pomorie, Burgas Bay, Primorsko, Chernomorets, Kiten, Rezovo and Tsarevo **for South Black Sea** and Balchik, Varna Bay, Kavarna, Obzor and Bulgarevo for **North Black Sea**;

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3. **54.55%** or **66,327** of the recreational fishers in the Black Sea are using boat fishing and **81,82%** or **99,484** practice shore fishing. Harpoon fishing used by **9.09 %** of fishers or **11,052**;

4. Most fishers **81.82%** or **99,484** people use fishing rod with single hook or lure to catch fish. In second place is the fishing rod with tentacles, used by **40.91%** or **49,742** people. A harpoon is used least often for fishing - **9.09%** or **11,052** people.

5. The total number of days during which recreational fishing was practiced in the Black Sea is **1 337 479**;

6. The most often caught species of fish and/or other marine organisms by recreational fishers exercising recreational fisheries in the Black Sea are **Gobies nei, Bluefish and Mediterranean Horse Mackerel**;

7. The total quantity of fish and/or other marine organisms, caught by recreational fishers exercising recreational fisheries in the Black Sea for one calendar year is **607 945 kg**;

8. Shares of catches (by species) from recreational fishing in the Black Sea compared to catches (by species) from commercial fishing in the Black Sea for one year.

- *Gobies nei* – **36 680 kg** from recreational fishing compared to **32 431.38 kg** from commercial which is **113,10 %** or approximately equal to the commercial catch.

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- *Mullet fish (Flathead grey mullet, So-iuy mullet, etc.)* – **2 300 kg** from recreational fishing compared to **6 902.30 kg** from commercial fishing or **33.32%** share.
- *Red mullet* – **83 600 kg** from recreational fishing compared to **445 406.40 kg** from commercial fishing or **18.77%** share.
- *Pontic shad* - **5 200 kg** from recreational fishing compared to **22 579.85 kg** from commercial fishing or **23.03%** share.
- *Atlantic bonito* - **800 kg** from recreational fishing compared to **1 483.00 kg** from commercial fishing or **53.94%** share.
- *Bluefish* – **127 200 kg** from recreational fishing compared to **302,106.65 kg** from commercial fishing or **42.10%** share.
- *Mediterranean horse mackerel* – **147 400 kg** from recreational fishing compared to **274 080.80 kg** from commercial fishing or **53.78%** share.

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