

# Final Report of the Regional Co-ordination Group Meeting for the Mediterranean and Black Sea 2021 Workshop on Recreational Fishery

8-9 March 2021 and 9 April 2021 (follow-up meeting)

**Online meeting** 

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# Draft minutes - first day (8 March 2021)

The RCG Mediterranean and Black Sea (RCG MED & BS), Workshop (WS) on Recreational Fisheries (RF), due to Covid-19 pandemic, was held as an online meeting from 8 to 9 March 2021. Follow-up meeting was organized on 9 April 2021 to discuss on the list of priority species.

The WS was organized by Fabio Grati from the Institute for Marine Biological and Biotechnological Resources of the National Research Council (CNR-IRBIM) who chaired the Workshop, with the support of Ivana Vukov and Jurgen Mifsud, chairs of RCG Med&BS 2021.

According to European Union Multi-Annual Programme (EU-MAP), MS shall provide catch estimates from existing recreational fishery surveys, including those carried out under the data collection framework or from an additional pilot study. These surveys shall allow assessment of the share of catches from recreational fisheries in relation to commercial catches for all species in a marine region for which recreational catch estimates are required under this multiannual Union programme. EU-MAP also requires that the subsequent design and extent of national surveys of recreational fisheries, including any thresholds for data collection, shall be coordinated at marine region level and shall be based on end-user needs.

During the first WS, held in Ancona in 2019, five Case Studies were presented (Italy, Malta, Greece, Spain and Cyprus), but emerged the need to finalize the studies, assess the outcomes and use them to generate plans for regular data collection. Moreover, independently from the selected methodology, it was underlined the need of have statistically sound principles and include an assessment of quality (e.g. GFCM "handbook"/guidelines; ICES WGRFS Quality Assessment Toolkit).

This 2<sup>nd</sup> RCG MED & BS WS was attended by the National Correspondents and/or their delegates from the 10 Member States (MS) of the competent area as follows: Bulgaria, Croatia, Cyprus, Greece, France, Italy, Malta, Romania, Slovenia and Spain. The meeting was also attended by the representatives of the EU-DG Mare (Units C3, D1, D3), the FAO-GFCM Secretariat (Anna Carlson, Paolo Carpentieri), the co-chair of the ICES WGRFS (Estanis Mugerza), the chair of the RCG Baltic & RCG NANS&EA (Dalia Reis) the STREAMLINE project ("Streamlining the establishment of regional work plans in the Mediterranean and Black Sea") coordinator (Alessandro Ligas).

The Chairs of RCG Med&BS 2021, Ivana Vukov and Jurgen Mifsud, opened the meeting and presented the main goals of the Workshop. Following RCG Med&BS 2020 Recommendation 6, the terms of reference for the Workshop is to create a common list of species for the region; and to agree on methodologies and type of data to be collected. The workshop was planned during the RCG Med&BS Annual Meeting in 2019, however due to restrictions in 2020, the second workshop was postponed to the beginning of 2021.

Gian Marco Luna, as director of the organizing Institution IRBIM – CNR, opened the session introducing the topic of RF and wishing to all participants a good work, remembering the first meeting of this group, held in presence in Ancona in 2019.

Fabio Grati, as Chairman, welcomed all the participants and presented the draft Agenda.

After the adoption of the Agenda (Annex I), rapporteurs were identified in Luca Bolognini and Martina Scanu.

### MARE data call on recreational fisheries and next steps

Venetia Kostopoulou (DG-MARE Unit C3) underlined that RF are an important component of the Data Collection Framework (DFC). This explains why from 2017, in the context of the EU-MAP, MS were given the opportunity to carry out pilot studies, in order to investigate how to collect data to assess the share of catches from RF in relation to commercial ones. The most important objective of the RCG will be to compile a list of species, including regional specificities. The WS held in 2019 provided a background to understand the data to be collected and the quality needed. It is important, but also challenging, to define the statistical universe of RF, in order to ensure statistical robustness of the data collected.

## **EU-MAP and Work Plan/ Annual Report template**

As recap for the MS, Monika Sterczewska (DG-Mare Unit C3), reminded that the species list compiled on the basis of the data collected, as well as all the results of the Pilot studies, should be submitted as soon as possible. Once the MS contributions are sent, experts will be involved in data comparison to analyse results and draw main conclusions and outcomes, so that information could be spread amongst the RCG and the MS. By March 15<sup>th</sup> 2021, , the consultation on the new EU-MAP will be closed. According to the draft EU-MAP, MS shall implement statistically robust multispecies sampling schemes that enable catch quantities to be estimated for stocks agreed at regional level, in accordance with the relevant end-user needs (e.g. GFCM and ICES). Catch quantities shall be estimated for species and areas listed in Table 4, that, up to now, includes eel, elasmobranchs and highly migratory ICCAT species. This list can be amended or replaced with the regionally agreed list of species, yet the data on the species from Table 4 needs to be collected under other regulations and management measures. Once that list is extended and the impact of RF on stocks is assessed, biological sampling in accordance with end-user needs will be put in place. For the implementation of the EU-MAP, the template for work plan and annual report was presented, as drafted by the STECF expert working group in the second week of February. A new version of the guidance and the descriptions of the columns of the table that will be in the template for RF were presented, as it has been amended since last year preliminary drafting.

# Legislative framework at EU and GFCM level and upcoming proposals on the management of recreational fishing activities

- Mariana Corte Real Lopes Matias (DG-MARE Unit D1). Between 8.7 and 9 million recreational fishers (1.6% of the EU population), fishing for approximately 77 million fishing days, producing 10.5 billion euros to the European economy were the current available estimations presented. It was pointed the attention on the important cultural role and the significant economic component of RF for coastal tourism, one of the main maritime sectors in gross value added and employment. It was reminded that RF plays a key role in the fishing mortality of stocks across Europe, lack of data on total catches has led to significant bias in stock assessment and risks the provision of incorrect advice on fisheries management across Europe. RF management measures are included in the following EU Regulations:
  - Control Regulation: Council Regulation (EC) No. 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy (includes RF definition);
  - Technical Measure Regulation: Regulation (EU) 2019/1241 of the European Parliament and of the Council on the conservation of fisheries resources and the protection of marine ecosystems through technical measures;
  - Western Mediterranean MAP: Regulation (EU) 2019/1022 of the European Parliament and of the Council establishing a multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea.

### Existing GFCM actions for RF were also presented:

- Regional Plan of Action for Small-Scale Fisheries in the Mediterranean and the Black Sea (RPOA-SSF) (2018);
- Handbook for Data Collection on Recreational Fisheries in the Mediterranean and Black Sea (2020);
- GFCM Working Group on Recreational Fisheries (WGRF) (latest session 25-26 February 2021).

As next steps toward the management of RF, the revision of the Control Regulation (including RF definition) at EU level and a GFCM proposal on minimum rules for sustainable RF activities in the GFCM area of application were mentioned. The upcoming GFCM Strategy Proposal for 2021-2030 was referenced as an important instrument to further cement the role of RF activities in the GFCM area of application.

Paolo Carpentieri, as member of the GFCM Secretariat, added that the GFCM WGRF will be permanent and that will be possibly held every two years. The compilation of the list of priority species for RF, based on specific criteria, was mentioned as one of the main results of the WGRF2021, including EU and non-EU

countries of the Med&BS area. Moreover, this year will be presented the catalogue of fishing activities by Geographical Sub Area (GSA), including not only the commercial fishery, but including also the RF activity. It was also underlined that the Handbook is still in editing phase and it will be so until summer.

# ICES "Quality Assurance Toolkit" (QAT)

- Estanis Mugerza, co-chair of the ICES WGRFS, working at the AZTI, gave a presentation on the Quality Assurance Toolkit (QAT). At the beginning, when this WS was in the organization phase, it was thought to perform a trial using the toolkit with the Pilot studies of MS of the RCG, but it would have taken too much time. Indeed, only an overview of the methodology was presented, starting from the structure of the workflow, passing through the history of Projects and Working Groups that contributed to develop it. From 2013, starting from compilation of national estimates for stock assessment or other purposes, in ICES context this toolkit for the evaluation of the quality of the data collected through surveys was developed. It consisted in a condensed set of guiding questions through which understand the key bias and how survey design could be improved. Documentation and quality evaluation of RF surveys focused on 3 different steps: the initial survey design, the implementation phase and the data analysis. The inspection of the quality of the data collected through surveys was considered particularly important for the end-users, identified in:
  - National laboratories (for documenting and monitoring national schemes);
  - Regional Coordination Groups (overviews of sampling schemes extant within the region; identification of important gaps in data; developing recommendations for optimizing sampling across countries);
  - European Commission (evaluation if Member States are meeting DCF / DC-MAP requirements for delivery of data using statistically sound methods);
  - Stock assessment expert groups (data quality in terms of precision and bias of estimates being used for assessments);
  - WGRFS itself (monitoring the extent and effectiveness of recreational fishery surveys; basis for ongoing development of methods; responding to specific requests).

In the same year, were developed Best practice Guidelines for RF surveys and a glossary for Rf terms, because in the past were encountered difficulties in definitions. Since 2014, WGRFS addressed a specific Tor related to assessing different National surveys (off-site and on-site), evaluating each year 3 different surveys. In 2018 the same methodology was reviewed, in order to update question on on-site and off-site survey characteristics and to consider how to ember within the Transparency Assurance Framework (TAF) in ICES. Moreover, since it is dealing with many topics, in 2020 the WGRFS was divided into intersessional groups, one of which is dedicated to the QAT. In 2021 this sub-group will try to address the subjectivity of some specific questions, provide a more logical flow, create different assessment criteria for on-site and off-site surveys, minimize different interpretations of the questions, and include more quantitative measures. This experience of using QAT was strongly suggested in Mediterranean basin because, working together, it is possible to learn from each other identifying potential improvements to survey design.

### Updates from National Pilot studies – day 1

- ➤ BULGARIA: Kolyo Zhelev gave an overview of the preliminary results of characterization of RF in Bulgaria. The survey planned for 2020, due to Covid-19 pandemic, is still ongoing and will be finalized in 2021. Anyway, following the recommendations of the RCG and the requirement under the EU-MAP, it was presented the methodology used in the survey: a first phase including telephone survey, as screening to have an idea of the total population engaged in RF, then it will be followed by an online and by phone recall survey. In relation to the Covid-19 pandemic restrictions, if it will be possible to circulate along the Bulgarian coasts, these surveys will be followed by the on-site survey.
- > CROATIA: Branko Dragičević presented the result of the Croatian case study starting from a general introduction on the country. Croatia is the third among EU countries for km of coastline (5800 km) and accounts for more than one thousand islets, where both recreational and sportive fishery are recognized and regulated through Marine Fisheries Act. However, a general scarcity of data was underlined, together with very limited scientifically based studies. A very detailed licence system in place in the country. It is

implemented for both recreational and sport fishery. The main difference between these modalities is that the use of speargun and heavy angling equipment is allowed only for sport fishers, while special permits are required for longline, traps, multi-pronged spear and use of artificial light. The database of issued licenses, due to privacy constrains was not used for direct randomized sampling, so a non-probabilistic study was conducted by the means of an online survey. In April 2019, fishers were asked to fulfil an online survey (nonprobabilistic method), accessible for 2 months. It was advertised through the website of the Ministry, the research Institute of Oceanography and Fisheries, social, specific groups and direct contact with fishers. Moreover, recall survey was performed for 2018 as reference year. Catch data were collected only for the species listed in Table 4 of the EU-MAP (Eel, elasmobranchs and highly migratory ICCAT species). In order to have a priority species list more comprehensive, it was proposed to look at a recent publication (Giovos et al., 2018), that analysed YouTube videos to characterize recreational fishery in Croatia. Pros and Cons of this approach were explained: it is cost efficient, anonymous and allow to include many people on voluntary basis (without pressure); however, no data on non-respondents, avidity bias, and problems in recalling events of the previous year, were highlighted as major constrains. In total 604 participants accessed the survey, majority were males and only 2.3% females. 38% of respondents were between 30 and 40 years old, and majority (70%) used only one fishing zone for fishing operation. Diving was the most common modality (34%), followed by boat (30%) and shore fishing (25%). Mean yearly weight per fisher was estimated around 50 kg, relatively high amount which could be due to the greater involvement of avid fishers in collaborating to the survey. Catch data and average yearly weight per fisher were presented for eel (Anguilla anguilla – 7.5% of respondents catch on average 5.8 kg yearly); rays, stingrays and eagle rays (17,3% of respondents catch on average 20 kg yearly); benthic sharks and catsharks (19% of respondents catch on average 23 kg yearly); and pelagic migratory fishes (53% of respondents catch on average 27.8 kg yearly).

DG-MARE asked whether the inclusion of all the species in the survey is foreseen. The RCG MED&BS noted that, this being an online survey, a certain part of the population (the oldest) could be reached with difficulty. In addition, the estimated avidity could be biased from the exclusion of reporting 0 catches data; underlining that it is a fundamental aspect in order to calculate total fishing effort and average catches. The Chair of the Group, suggested to switch to a probabilistic survey, using licences as statistical universe from which to extract contacts to create a panel for recall survey, underling that in other countries, like Spain, this approach was successful. Ivana Vukov underlined the good potential of the Croatian license system, in fact, this electronic system includes also touristic activities. Moreover, licenses and commercial data collection are organized by areas, in this way it will be easier to compare RF data with commercial one because they will be collected following the same scheme.

- CYPRUS: Nikolas Michailidis presented the general overview of RF in Cyprus. The licensing system includes boat fishing and speargun, while for shore fishing no permit is needed. The survey was performed from 2017 to 2019, on 12 months recall approach, to maximize the coverage in terms of space and time. Licensed fishers were randomly selected from a list of telephone numbers, while shore fishers were surveyed nationwide, through random multistage stratified sampling per postal area and area type within (urban/rural). From the survey 2.7% of the population resulted to conduct RF, mostly male between 15 and 85 years. Total catches from the RF resulted in 1065 tonnes per year, while CPUE were estimated as 34 kg/year/fisher for shore fishing, 66 kg/year/fisher for speargun and 108 kg/year/fisher for boat fishing. Expenditures were estimated around 18m€/year. The analysis of catches showed that some high trophic species are mainly harvested by RF, while many commercial species are not targeted by this fishery. Since these results showed very high values for effort and catches, the Group asked for clarifications. Data on avidity were asked on annual basis (including days with 0 catches), effort estimation was considered as reliable; the presence of duplicated information was excluded thanks to the fact that each fisher was asked to report only his own catches (even when fishing in group). Moreover, it was underlined that total catches by year could be high because in Cyprus there are many recreational fishers (3% of the total population), but CPUE kg/year/fisher did not show very high results. Considerations on the impact of RF were discussed in relation to the trophic level of the catch.
- FRANCE: Niamh Smith presented the results of the French Case Study. The national context was introduced: actually, there is no licence system or register, and it is not mandatory to report catches; however, closing periods, limited number of authorised gears, ban on fishing certain species, are regulation in place for

managing the sector of RF. In France many surveys on the sector were performed since 2004 by Ifremer, focusing on different species; however, there is currently no database in which these data have been stored. In 2017, a new multi-species pilot study was put in place starting from a Telephone screening survey. This first phase was followed by a Panel survey (2018-2020), during which volunteer fishers recorded their sessions in logbooks. The estimated French population dealing with RF was estimated around 5% and the main species caught were: mackerel, seabass, sea bream, pollack and seabreams. Unfortunately, high dropout rate of panellists did not allow a reliable estimation of catch quantities. A new survey was programmed and launched in 2021. It was structured in 3 steps: screening (for the estimation of the size of the fishers' population), additional (aimed at characterizing the activity) and panel survey (for catch estimates), consisting in uploading information on fishing sessions and catch via a mobile application (FishFriender). Compared to the previous survey, this pilot study has many advantages: new tools such as online panel, social media and web/smartphone application, additional screening phase to enhance the description of the activity by increasing fishers sample size, involvement of recreational fishing federations, and number of additional questions to better characterise fishers' activity and profile. On this ongoing pilot study, the QAT was tested and it is important to underline that France was the only MS to use this toolkit in this WS. However, data collected during previous French surveys on MRF were considered not reliable and France will pursue the effort but cannot guarantee the production of reliable catch estimates for specific species. After the presentation, since in the past French data from Mediterranean Sea, Atlantic Ocean and English Channel were grouped, the Group asked if this was repeated also in the most recent pilot study. National correspondent confirmed that recent data are aggregated for the 3 basins separately. The Group also noted that in the results presented the gender composition of recreational fishers was almost equal between males and females (55%-45%); it was justified by the significant number of women practicing shellfish shore gathering.

- After lunch the session continued with **Dàlia Reis**, chair of ISSG Recreational fishery of the RCG NA NS&EA and RCG Baltic. In the new EU-MAP no more structural pilot study will be mentioned, so the current ones should be transformed in permanent ones. It was stressed the need to have a common database to be able to work with, where all recreational data will be available for RCG purposes. RDBES (acronym of the database in preparation) will be ready in 2023. For the development of regional sampling plans for RF, the structure of "5 general steps" approach was presented in these RCG. It includes different level of coordination, from absent to common monitoring strategy and joint data collection. It was accepted and adopted in the other subregions in the last RCG meetings, and was applied as example at the Baltic pelagic fishery case study. Estanis Mugerza stressed again the importance of having a common database, and asked if the Commission is working toward the realization of specific one for Med&BS subregion.
- GREECE: Anastasios Papadopoulos presented preliminary results for the Greek pilot study, performed on data collected in 2017-2019, but the study will proceed until 2021 and the final results will be ready at the beginning of 2022. It was 3-steps structured: screening survey to estimate the number of RF since Greece has no licensing system, diary survey to record their gears and avidity collect biological and quantitative data on catches, and on-site survey to record their gears and avidity collect biological and quantitative data on catches as well as to validate the collected data from previous methods. From the screening survey it emerged that shore fishing is the most popular mode of fishing (63%), followed by boat fishing (37%) and spearfishing (21%). On average fishing frequency was estimated in 16 times/year, annual catches per fisher around 13 kg, and 181€/year as expenditures by fisher. Regarding the species, Sparidae family appeared to be the most common in catches, both in Aegean and Ionian Sea. As next steps, it is considered to geographically expand the coverage with on-site survey in order to have a more representative sample for catch data. Moreover, additional methods for collecting data (e.g. site and mobile app) will be tested. Moreover, it was stressed the difficulty in including spearfishers in the survey, due to many reasons. Between these there could be the fear of the introduction of regulation or maybe the fact that they are not prone to participate partly because some of them take part in IUU fishing. Matias Lozano suggested the use of the app as suitable instrument to trace spearfishers. Then the Chair asked for possible interaction between RF and SSF (spatial and/or for the resources) in the region and Anastasios Papadopoulos confirmed their strong

conflict. Questions were raised on catch and release data, and it was pointed out the need for studies evaluating the post-release survival (pointing the attention on large pelagic fishes and sharks).

# **GFCM WGRF 2021 (main outcomes)**

Anna Carlson (GFCM Secretariat) presented the main outcomes and conclusion that came out from the WGRF2021 online meeting. The handbook was endorsed and it is expected to be published in the first part of 2021. It covers many different topics: data collection, methodology, data analysis and stakeholder engagement. Furthermore, the WG endorsed the workplan to provide technical assistance to additional countries interested in setting up RF data collection; at the moment there are different pilot studies undergoing in each GFCM subregion. Another main conclusion of the WG was the need to start compiling the main RF species list. It was agreed a roadmap in selecting species, starting from the GFCM DCRF priority species list, looking for possible impact of RF on these stocks, then identify additional species, based on agreed criteria. These criteria agreed among experts were presented: high volume in landings, important social (e.g. quality of RF experience) or economic impact (e.g. species driving tourism), risk of overexploitation and/or steep decrease in abundance, conservation interest, non-indigenous species, and commercial interest for SSF. Based on these criteria, a template for the list of species was shared. The secretariat will collect a proposal of 6 (species) more or less, by subregion, and then will include it in the GFCM WGRF report to be submitted to SAC. Other relevant conclusion included the discussion of SSF-RF interaction, primarily conflict. In addition, it was agreed that an important perceived conflict between these 2 sectors is from IUU fishing and, as such, suggested that further work will be carried out through the WGIUU to improve understanding of illegal fishing in coastal areas. Moreover, it was agreed that the engagement of stakeholders in data collection process was an essential step towards reducing conflicts and promoting synergies between the sectors. After the presentation, a clarification regarding the proposed list of priority species was asked. Anna Carlson specified that, as they are considered vulnerable species, in this list all sharks and rays will be included. DG-MARE asked on which basis (data sources) the template will be filled and it was answered that it will be compiled based on data coming from pilot studies (where they are in place) or through expert judgement. Estanis Mugerza asked for more detail on the future work of WGIUU, proposing a collaboration between region, but it was explained that normally the WG deals with industrial fisheries, but this RF issue will be presented to theme, hoping that some IUU detecting methodology could be capitalized and applied in coastal areas too. The Chair proposed to use the same template developed by GFCM to be circulated among MS, following the same criteria. The RCG agreed in fulfilling this template, to be included in the final report of the WS.

# Draft minutes - second day (9 March 2021)

# Updates from National Pilot studies - day 2

➤ ITALY: Adriano Mariani presented the Italian case study, dividing it in different phases. Phase 1 was conducted between 2018 and 2019 and included the analysis and validation of the Register of fishermen of the Ministry of Agricultural, Food and Forestry Policies (Min. Decr. 6 Dec 2010) and the following estimation of variables of interest through expert interviews (elicitation techniques) and sample survey at national scale. The number of registered anglers in 2019 was 1.077.048 (Source: Ministry of Agricultural, Food and Forestry Policies (MIPAAF)). The list of registered fishermen, in MIPAAF database, contains: personal information, membership of sport fishing association, fishing areas, fishing gear, fishing techniques and boats. Starting through a crosschecking of data, records in the register have been checked and validated. After that, units were extracted by a stratified random sampling without replacement, where each sample unit will be chosen randomly from the population, and a logbook was distributed to these people. It was possible to estimate catches. On the base of a threshold of 5% of recreational catches respect to the total catches (target species), and on an estimate of the relevance of non-target species (not included in the list from data collection), a list of species was proposed. Some constraints carrying out the first phase has suggested to implement a new

- sample design. A second phase was then proposed to tune and implement the methodology previously adopted, in view of a final proposal for a routine survey in the new EU-MAP. It will include Telephone survey (2020) followed by Sample survey (2021). Analysis of the telephone survey is still in progress and preliminary results are also compared with other similar programs for a possible harmonization. Preliminary estimates suggest a range of 1.400.000 1.600.000 as a total number of marine fishermen. The survey is foreseen to be carried out through logbook distributed to a panel of fishermen in the Italian regions. After the presentation, clarification regarding the issue related to the MIPAAF register of licenses were asked.
- > MALTA: Luca Pisani Recreational fishing in Malta is divided into two main sectors, depending on vessel registration: a) non-commercial registered in the National Fleet Registry (MFC vessels) of the Fishery Department which are provided of a license for minor fishing gears; b) sport fishing vessels which are registered in the National Maritime Register of Transport, and for which a license is not required as the activity is restricted to sport fishing gears. Land-based recreational fishing does not require a license. The aim of the study was to assess the share of catches of select species from recreational fisheries in relation to commercial fisheries. The target species were selected in accordance with Table 3 of the Commission Implementing Decision (EU) 2016/1251, and are predominantly ICCAT-monitored species. X. gladius is absent as it cannot be caught by recreational fishers. Survey was drafted and carried out by a sub-contractor in two phases between 2018 -2019. These surveys were conducted in-person with the recreational fishers. A total of 152 recreational fishers with "MFC" registered vessels and the corresponding licenses were surveyed across this period. Data collected included information on the fisher, basic fishing effort (such as distance from the shore and seasonality of fishing), and catches of the target and other non-target species. Due to a number of issues with the data, the DFA is not fully confident in this pilot study and its findings. The results of the survey suggest that the catches of "MFC" recreational fishers (of both select target species and other non-target species) are negligible, particularly when compared to commercial catches. In view of the preliminary results, DG-MARE asked whether Malta will carry out another pilot study on RF. Further study is required in order to more accurately assess the real contributions of recreational fishers towards the total Maltese catch.
- ROMANIA: George Tiganov showed the preliminary result of the survey, which will last until the end of 2021, so the final result will be ready in 2022. Recreational fishing on the Romanian coast of the Black Sea can be done both from the shore, dams and from the boat, and the baits used can be natural (shells, frames, fish or poultry) or artificial (fish forms made of metal, 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 RF are: (at family level) Gobiidae, Carangidae, Mugilidae, Belonidae, Mullidae, Pomatomidae and sometimes Clupeidae and Dasyatidae. It was underlined that in the country, most fishermen use recreational fishing for food purposes as subsistence fishing. The main sources of data collection were: the questionnaire sent by each fisherman online, periodic field surveys and interviews with fishermen having fishing permits. The questionnaire completed by each fisherman contained the information regarding species, total catch, date and the area where they fished in the previous year. The data are collected annually, with the support of NAFA staff, and information are also obtained through regular field surveys through the network of collectors, respectively, interviews with fishermen. The group noted that the species list was distinctively different from the one for the Mediterranean, so the two sea basins should not have a common list of species for RF.
- > SLOVENIA: Tim Berginc started the presentation describing all the fishing licenses existing in the country (shore fishers do not require permit). Slovenia is one of the first countries that started data collection for RF many years ago. Up to now, in fact, they have estimates for every fishing typology (number of fishers, fishing days, Kg of catches per year, and the most caught species). To have a data series on RF, like the Slovenian one, would be really useful for RCG.
- > SPAIN: Ricard Buxo de la Pena presented the preliminary results of the Spanish case study. It was developed by the General Secretariat for the Fisheries of the Spanish Ministry of Agriculture, Fisheries and Food. Started in July 2020 and will end in March 2021. The main objectives have been:
  - Characterize and estimate catches and discards by MARINE recreational fishing;
  - Identify the impact on species resulting as target-species;
  - Compare and evaluate the impact on professional fisheries;

Development of a proposal of survey for recreational fishery to comply with DCF.

Data collection started with grouping all licences in force in 2020 issued by the autonomous regions and categorization theme (boat, coast and spearfishing). The population frame was constituted by the total number of available license's, through which the sample size is calculated for each type of license for each sampling entity. The sample size has been calculated considering fishing effort (days), as this is considered to be the variable with the highest variance. Fishers were contacted through telephone survey, and data were collected on paper and recorded in a database. Average effort value was estimated for each fishing typology: on boat 45 days, shore fishing 36 days, spearfishing 32 days (respectively 67%, 28% and 5% of the total fishing effort). The list of main target species by fishing typology was also presented, stressing that these were only preliminary results and that an overdimension of data, particularly catches, due to different bias (explained during the presentation) must be considered. Species (65% catches): Gilthead seabream, European seabass, Seabreams, Dentex spp, Sand Steenbras, Combers, Common dolphinfish, Horse Mackerel, Groupers and Little Tunny. For most of those species the main concern was the way RF could affect commercial fisheries, especially SSF. Since a large part of the professional activity (50-60%) corresponds to this type of fleet with which they share a large part of the catch composition with the recreational activity. As next steps were cited the possibility to conduct on-site surveys to improve species identification and cross-check the information, and the use of Apps (in which fishermen declare and identify their catches) and online surveys (instead of phone calls). After the presentation, Chair underlined that this type of survey could be affected by memory bias: recalling one year is really difficult. Great attention was also given to the comparison between SSF and RF catches, pointing out the possible problem of over or underestimation of both commercial and recreational catches.

# **Conclusions**

# **Design of national surveys**

- Although sampling schemes used for the purpose of pilot studies are not homogeneous among countries, similar methods for data collection have been observed (e.g., logbooks, recall, online questionnaires)
- Some work is still needed to adapt the sampling strategy to national specificities
- Some work is still needed to harmonise national sampling methodologies at a regional scale
- The GFCM is available to provide technical assistance to countries interested in setting up RF data collection
- Quality assurance framework (QAT) has not been mentioned by most MS, but there is a need to reported it to COM
- The ICES QAT could be helpful to improve the quality of design, implementation and analysis of national sampling schemes
- The ICES QAT is usually performed by world-class experts during ICES WGRFS on a selected number of countries

### Share of RF catches in relation to commercial catches

- RF catch data have been presented for most countries, even though they are in the form of preliminary results in most countries
- At present, it is difficult to estimate the impact of RF on commercial stocks in most countries
- Interaction between RF and SSF for the exploitation of the same resources
- Share of catches between RF and SSF could be affected by an overestimation/underestimation of RF catches and an underestimation of SSF ones

# **Priority list of species**

A number of species have been already highlighted in the national contributions

- Criteria for identifying the priority species have been proposed by GFCM:
  - 1) Species with a high volume of catches from recreational fisheries
  - 2) Species at risk of overexploitation and/or for which a decrease in abundance has been observed
  - 3) Species of conservation interest (e.g. endangered, vulnerable, etc.)
  - 4) Species with an important social impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)
  - 5) Species with an important economic impact for RF (e.g. species driving tourism, etc.
  - 6) Non-indigenous species (NIS)
  - 7) Main species of commercial interest for SSF (by volume and value)
- Template to be circulated among MS to identify the 6 most important species

In order to identify the list of priority species at regional level in the workshop it was agreed to follow the same approach adopted in the GFCM working group. However, some experts expressed their reservations regarding applicability of all criteria. Specifically, regarding criteria on Non-indigenous species (NIS), as most of them are invasive with no conservation interest. This criterion is of no value to the purpose of monitoring RF but MS can cover the "need" of collecting such data if they proceed with a multispecies survey. There is no point in selectively monitoring alien or invasive species for management purposes, there is only scientific interest for this species which is irrelevant to this effort. The same goes for farm escapees like seabream and seabass in certain areas (e.g. Cyprus).

# Workplan

- The RCG chairs will send the template for species selection to MS by this week
- Receive the template filled in by 31 March
- 5 April follow-up short meeting (max 2 hours) to discuss and identify the final list of selected species by Subregion (West Med, Central Med, East Med, Adriatic, Black Sea)
- Circulate the Workshop report by the end of May
- Outcomes of the workshop presented at the next RCG Med&BS meeting (September)
- During the RCG Med&BS (September) meeting, the list of priority species identified by GFCM (based on the knowledge of participants at the WGRF of 25-26 February) and the MS (on the basis of the outcomes of the pilot studies during this RCG RF workshop) will be compared

# Recommendations

- The GFCM "Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea" could be used to harmonise the sampling schemes and methodology at the Subregional and Regional level
- Link the work of RCG on RF with the Regional Grants MARE/2020/08 'STREAMLINE' and 'MED&BS RDB'
- Keep the national surveys at multi-species level (catches in biomass for all species) and collect biological data (length and weight, and otoliths if possible) for the identified list of priority species by Subregion based on end-user needs
- An analysis of the quality of effort and catch data should be carried out

National Correspondents should agree on the final recommendations during the RCG Med&BS 2021 Annual meeting in September 2021.

# **Annex 1: Final Agenda**

# Regional Coordination Group Mediterranean & Black Sea Workshop on Recreational Fisheries

Meeting venue: virtual meeting on Teams Dates: 8th-9th March 2021

# **Final Agenda**

# Monday 8th March

09.30 - 09.45	Registration
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09.45 - 10.00 MARE data call on recreational fisheries and next steps DG MARE Unit C3

10.00 - 10.15 EU-MAP and Work Plan/ Annual Report template DG MARE Unit C3

10.15 - 10.30 Legislative framework at EU and GFCM level and upcoming proposals on the management of recreational fishing activities DG MARE Unit D1

10.30 - 11.00 ICES "Quality Assurance Toolkit" (QAT) E. Mugerza

# 11.00 - 11.15 **Coffee Break (10:40 - 10:50)**

11.15 – 13.00 **Updates from Pilot studies**. National representatives will present in details the methodology used (or planned), the list of species caught by RF and their relative importance in biomass if compared with commercial catches.

# 13.00 - 14.30 Lunch break

14.30-16.00 **Updates from Pilot studies**. National representatives will present in details the methodology used (or planned), the list of species caught by RF and their relative importance in biomass if compared with commercial catches.

### 16.00 - 16.15 Coffee Break

16.15 – 16.40 GFCM WGRF 2021 (main outcomes)

**Anna Carlson** 

### Tuesday 9th March

09.30 – 12.00 **Updates from Pilot studies**. National representatives will present in details the methodology used (or planned), the list of species caught by RF and their relative importance in biomass if compared with commercial catches.

# 12.00 - 12.15 Coffee Break

12.15 – 14.00 **Discussion and draft conclusions** on the design of national surveys; the share of catches from recreational fisheries in relation to commercial catches for all species in the Mediterranean and Black Sea; a priority list of species based on end-users needs

# Annex 2: List of participants

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# **Annex 3: List of priority species by subregions**

# **Adriatic Sea**

inte recr Ran	n species of rest for eational fisheries k in order of ortance:			Criteria for selection Check all that apply:  Species mainly caught Species with an											
Spec nam	cies name (scientific e)	Proposed by	Specie Shore	s mainly by: Boat	y caught Under- water	Species with a high volume of landings from recreational fisheries	Species with an important social impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)	Species with an important economic impact for RF (e.g. species driving tourism, etc.)	Species at <u>risk of</u> <u>overexploitation</u> and/or for which a steep <u>decrease in</u> <u>abundance</u> has been observed	Species of conservation interest (e.g. endangered, vulnerable, etc.)	Non- indigenous species (NIS)	Main species of commercial <u>interest for</u> <u>SSF</u> (by volume and by value)	Comments / rationale for selection		
1	Sparus aurata	Slovenia		Χ			X								
2	Dicentrarchus labrax	Slovenia		Х			х								
3	Dentex dentex	Slovenia		Х	Х										
4	Pagrus pagrus	Slovenia		Χ	Х										
5	Lichia amia	Slovenia		Χ	Χ										
6	Seriola dumerili	Slovenia		Χ	Х										
1	Sparus aurata	Croatia	х	Х	х										
2	Dicentrarchus labrax	Croatia	x		х										
3	Epinephelus spp.	Croatia		х	х										
4	Pomatomus saltatrix	Croatia	х	х	х										
5	Dentex spp.	Croatia		х	х										
6	Octopus vulgaris	Croatia	х	х	х										
7	Scorpaena scrofa	Croatia													
8	Diplodus spp.	Croatia													

9	Seriola dumerilii	Croatia					
10	Loligo vulgaris	Croatia					
11	Sepia officinalis	Croatia					
12	Mugilidae spp.	Croatia					
13	Conger conger	Croatia					
14	Pagellus erythrinus	Croatia					
15	Pagrus pagrus	Croatia					
16	Sciaena umbra	Croatia					
17	Spondyliosoma cantharus	Croatia					
18	Merluccius merluccius	Croatia					
19	Muraena helena	Croatia					
20	Lithognathus mormyrus	Croatia					

# Black Sea

for Ran	in species of interest recreational fisheries ak in order of oortance:		Criteri	a for se	lection Cl	neck all that appl	y:					
Spe nam	cies name (scientific ne)	Proposed by	Specie Shore	es mainly by: Boat	v caught Under- water	Species with a high volume of landings from recreational fisheries	Species with an important social impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)	Species with an important <u>economic</u> <u>impact</u> for RF (e.g. species driving tourism, etc.)	Species at <u>risk of</u> <u>overexploitation</u> and/or for which a steep <u>decrease in</u> <u>abundance</u> has been observed	Species of conservation interest (e.g. endangered, vulnerable, etc.)	Non- indigenous species (NIS)	Main species of commercial <u>interest for</u> <u>SSF</u> (by volume and by value)
1	Round goby (Neogobius melanostomus)	Romania	х	х		х	x	х				х
2	Knout goby (Mesogobius batrachocephalus)	Romania	х	х			х	х				х

3	Mediterranean horse mackerel (Trachurus mediterraneus ponticus)	Romania	х	x	x	x	x		x
4	Blue fish (Pomatomus saltatrix)	Romania	х	х		х	х		х
5	Flathead grey mullet (Mugil cephalus)	Romania	х	х	х	х			
6	Golden grey mullet (Liza aurata)	Romania	х	х		х			
7	Common stingray (Dasyatis pastinaca)	Romania	х	х					
8	Pontic shad (Alosa immaculata)	Romania	х	х		х			x
9	Black Sea shad (Alosa tanaica)	Romania	х	х		х			
10	Garfish (Belone belone euxini)	Romania	х	х					
11	Red mullet (Mullus barbatus ponticus)	Romania	х	х					
12	Black scorpionfish (Scorpaena porcus)	Romania	х	х					
13	Greater weever (Trachinus draco)	Romania	х	x					

<sup>\*</sup>Due to ongoing pilot study, Bulgaria did not provide list of priority species.

# Western Mediterranean

Main species of interest for recreational fisheries Rank in order of importance:	Proposed by	Criteria for selection CF	neck all that app	ly:						Comments / rationale for selection
Species name		Species mainly caught	Species with a	Species with an	Species with	Species at risk of	Species of	Non-	Main species	
(scientific name)		by:	high volume	important social	an important	overexploitation	conservation	indigenous	of	

			Shore	Boat	Under- water	of landings from recreational fisheries	impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)	economic impact for RF (e.g. species driving tourism, etc.)	and/or for which a steep <u>decrease in</u> <u>abundance</u> has been observed	interest (e.g. endangered, vulnerable, etc.)	species (NIS)	commercial interest for SSF (by volume and by value)	
1	Dicentrarchus labrax	France	x	х	x		x			x		x	Species highly cited by RF but no estimate of the volume of catches available
2	Sparus aurata	France	x	х	x							x	Species highly cited by RF but no estimate of the volume of catches available
3	Diplodus sargus	France	x	х	x								Species highly cited by RF but no estimate of the volume of catches available
4	Dentex dentex	France	x	х	x		x			x		Х	Species targeted, but no catch estimates available
5	Seriola dumerili	France	х	х	х		х						
1	Sparus aurata	Spain	Х	Х	Х	Х						Х	
2	Diplodus sargus	Spain	х	х	Х	х						х	
3	Epinephelus spp.	Spain	х		x	х						х	

4	Dicentrarchus labrax	Spain	х		х	х			х	
5	Dentex dentex	Spain	Х	х	Х	х			Х	
6	Serranus scriba	Spain	Х	х	х	х			х	

# **Central Mediterranean**

int red fisl Rai	nin species of erest for reational neries nk in order of portance:		Criteria	a for se	lection Ch	ection Check all that apply:									
	ecies name entific name)	Proposed by	Specie Shore	Species mainly by:  Shore Boat		by:		Species with a high volume of landings from recreational fisheries	Species with an important social impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)	Species with an important economic impact for RF (e.g. species driving tourism, etc.)	Species at <u>risk of</u> <u>overexploitation</u> and/or for which a steep <u>decrease in</u> <u>abundance</u> has been observed	Species of conservation interest (e.g. endangered, vulnerable, etc.)	Non- indigenous species (NIS)	Main species of commercial <u>interest for</u> <u>SSF</u> (by volume and by value)	Comments / rationale for selection
1	Epinephelus spp	Greece			Х		Х	Х	X	Х					
2	Diplodus sargus	Greece	Х	Х	Х	Х	x					х			
3	Dentex dentex	Greece					Х		Х	Х					
4	Diplodus vulgaris	Greece	Х	Х		Х						х			
5	Pagellus erythrinus	Greece	Х	Х	Х	Х						х			
6	Dicentrarchus labrax	Greece	Χ	Х	Х	Х	X					х			
1	Dentex dentex	Malta	х	х	х	N/A	x	x	x	х		x	A highly valued and widely targeted species, both from recreational and		

											professional fisheries, which has seen a decline in recent years.
2	Dentex gibbosus	Malta	×	x	x	N/A	x	x	x	x	A highly valued and widely targeted species, both from recreational and professional fisheries, which has seen a decline in recent years.
3	Loligo vulgaris	Malta	x	x		N/A	x	x		x	A highly valued and widely targeted species, both from recreational and professional fisheries, which has seen a decline in recent years.
4	Pagellus bogaraveo	Malta		x		N/A	x	x	х	x	A highly valued and widely targeted species, both from recreational and professional fisheries, which has seen a decline in recent years.
5	Paracentrotus lividus	Malta			х	N/A		х	×		A species that has drastically decreased across coastal waters in the

												last few years, which is also known to be over-harvested by underwater fishers.
6	Seriola dumerili	Malta	x	x	x	N/A	x	x	x		x	A highly valued and widely targeted species, both from recreational and professional fisheries, which has seen a decline in recent years.

# **Eastern Mediterranean**

in re fis	ain species of terest for creational heries ank in order of aportance:		Criteria for selection Check all that apply:										
	ecies name cientific name)	Proposed by	Specie Shore	s mainly by: Boat	y caught Under- water	Species with a high volume of landings from recreational fisheries	Species with an important social impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)	Species with an important economic impact for RF (e.g. species driving tourism, etc.)	Species at <u>risk of</u> <u>overexploitation</u> and/or for which a steep <u>decrease in</u> <u>abundance</u> has been observed	Species of conservation interest (e.g. endangered, vulnerable, etc.)	Non- indigenous species (NIS)	Main species of commercial <u>interest for</u> <u>SSF</u> (by volume and by value)	Comments / rationale for selection
1	Epinephelus marginatus	Cyprus			х	х	X		х	х			vulnerability, overexploitation risk
2	Dentex dentex	Cyprus		х		х	Х		х	х			vulnerability, overexploitation risk

3	Epinephelus aeneus	Cyprus		х			x		x	х		vulnerability, overexploitation risk
4	Pagrus pagrus	Cyprus		Х		х	х		Х			overexploitation risk
5	Mycteroperca rubra	Cyprus			Х		Х		Х			overexploitation risk
6	Seriola dumerili	Cyprus		Х		Х	Х		Х			overexploitation risk
1	Epinephelus spp	Greece			Х		Х	Х	Х	Х		
2	Diplodus sargus	Greece	Х	Χ	Х	Х	Х				Х	
3	Dentex dentex	Greece					Х		X	X		
4	Diplodus vulgaris	Greece	Х	Х		Х					Х	
5	Pagellus erythrinus	Greece	Х	Χ	Х	X		_			Х	
6	Dicentrarchus labrax	Greece	Χ	Χ	Χ	X	X				Х	

# Information provided by Italy (all subregions merged)

reci fish Ran	in species of erest for reational eries sk in order of portance:	t for ional s order of ance:  Criteria for selection Check all that apply:											
	cies nam <u>e</u> entific name)	Proposed by	Specie Shore	by: by:	y caught Under- water	Species with a high volume of landings from recreational fisheries	Species with an important social impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)	Species with an important economic impact for RF (e.g. species driving tourism, etc.)	Species at <u>risk of</u> <u>overexploitation</u> and/or for which a steep <u>decrease in</u> <u>abundance</u> has been observed	Species of conservation interest (e.g. endangered, vulnerable, etc.)	Non- indigenous species (NIS)	Main species of commercial <u>interest for</u> <u>SSF</u> (by volume and by value)	Comments / rationale for selection
1	Dicentrarchus labrax	Italy	х	х	х	х	х	х				х	Species very valued all over

2	Sparus aurata	Italy	х	х	х	х	х	х			х	Species very valued all over
3	Pagellus bogaraveo	Italy		Х		х	Х				х	
4	Dentex dentex	Italy		х	X		X				х	Not considered among the species in the Data Collection Regulation
5	Pagellus erythrinus	Italy		х							х	
6	Epinephelus spp.	Italy		x	x		x		x			During the 2019 survey only generic name was asked for. Species name will be considered during the second survey 2021. Species not considered in Data Collection.
7	Diplodus spp.	Italy	х	х	x	x					х	During the 2019 survey only generic name was asked for. Only D. annularis considered in Data Collection species.
8	Sciaena umbra	Italy			х		х					Not considered in Data Collection species.
9	Seriola dumerili	Italy		х	х	X	x					Not considered in Data Collection species.
10	Loligo vulgaris	Italy		х		Х					Х	
11	Octopus vulgaris	Italy		Х	Х	Х					Х	

# All subregions combined

Adriatic	West Med	Central Med	East Med	Black Sea	
Dicentrarchus labrax	Dicentrarchus labrax	Dicentrarchus labrax	Dicentrarchus labrax		
Dentex dentex	Dentex dentex	Dentex dentex	Dentex dentex		
Epinephelus spp.	Epinephelus spp.	Epinephelus spp.	Epinephelus spp.		
	Diplodus spp.	Diplodus spp.	Diplodus spp.		
Sparus aurata	Sparus aurata				
		Pagellus erythrinus	Pagellus erythrinus		
Pomatomus saltatrix				Pomatomus saltatrix	
	Seriola dumerili				
			Pagrus pagrus		
				Trachurus mediterraneus ponticus	
				Mesogobius batrachocephalus	Gobidae
				Neogobius melanostomus	
				Mugil cephalus	Mugilidae
				Liza aurata	

# ICES WGRFS 2019 - Potential new DCF species (ToR d) - Mediterranean

- 1. No threshold should apply to recreational catches
- 2. The priority species should include: Epinephelus spp., Dicentrarchus labrax, Dentex dentex, Diplodus sargus, Sparus aurata, Sciaena umbra\*, Umbrina cirrosa\*.
- 3. Multispecies survey should be carried regularly to have a complete picture of the recreational fisheries catches and assess if new species should be added.
- \* Annex III (LIST OF SPECIES WHOSE EXPLOITATION IS REGULATED) PROTOCOL CONCERNING SPECIALLY PROTECTED AREAS AND BIOLOGICAL DIVERSITY IN THE MEDITERRANEAN

Mediterranean Action Plan (MAP) - United Nations Environment Programme (UNEP) - Barcelona Convention (1995)

# **Annex 4: Presentations**

### MS PRESENTATIONS ON PILOT STUDIES

### **BULGARIA**

Bulgarian pilot study on recreational fisheries planned for 2020 was postponed for 2021 due to Covid-19 and administrative burdens.

Is expected in next months the public procurement to be finalised and to proceed with the survey. Following the recommendation by RCG MED & BS and the requirements under multi-annual Union programme, Bulgaria was planned a pilot study in order to allow assessment of the share of catches from recreational fisheries in relation to commercial catches by Bulgarian fleet in the Black sea. The aim of the study is also to estimate the number of recreational fishermen in the marine waters in the country, to record their fishing practices, and to collect data for the species and quantitative data of their catches.

The screening survey will be performed through a telephone and/or online survey by a commercial company, which used an ad hoc questionnaire addressed to the households from its database. The questionnaire will be short and simple. The data from the survey will be used for the estimation of the average number of fishermen in each household for one year. These estimates will be used in combination with the available data of national census in order to assess the total number of inhabitants of the country engaged in recreational fishing. The expected outcome of the pilot project is to understand better the current situation of the recreational fishery in Bulgaria by getting answers to questions like where people have gone fishing during the year and what equipment was used, how many trips/days/hours were performed, so to determine the level of fishing activity, how many individuals by species were caught and their weight.

### **CROATIA**



PILOT STUDY ON RECREATIONAL FISHERIES IN CROATIA

Ministry of agriculture of Republic of Croatia – Directorate of fisheries



Institute of oceanography and fisheries



# **BACKGROUND**

- Both recreational and sportive fishery are recognized and regulated through Marine fisheries act
- Licensing system is implemented for both types. Difference between these two modalities is that use of speargun
  and heavy angling equipment is allowed with acquisition of license for sportive fishery (membership with sportive
  association is essential). Special licenses for longline, traps, harpoon and use of artifical light
- Types of licenses: day, week, month, half year and year.
- Between 70 000 and 80 000 licenses are issued yearly (in 2018 a total of 75 546 licenses were issued)
- Approx. 72% are yearly and half-year licenses
- Data collection not implemented (no obligation for reporting the catches no log-books)
- Restricted use of gears and daily bag limit implemented
- General scarcity of data in recreative and sportive fisheries (except for data on ICCAT species in sport competitions)

# PILOT STUDY

- Due to general scarcity of the data the aim of the study was to provide preliminary data on recreational and sportive fishery in Croatia
- Through licensing system, contacts of users are collected but due to GDPR the data could not be used for direct randomized sampling, so a non-probabilistic study was conducted by the means of an online survey
- In April of 2019 the survey was disseminated through websites of Ministry of Agriculture, Institute of
   Oceanography and Fisheries, news portals, social network (facebook groups oriented toward recreative and sportive fisheries) and by direct contacts
- The survey (Google Forms) featured a structured questionnairre which contained general questions (gender,
  age, type of licence used), fishing area, effort in days, seasonality, gears used, total biomass and questions
  about the catch of specific species (eel, benthic and pelagic elasmobranchs, pelagic migratory species)
- Recall survey for 2018 as a reference year

# **PROS**

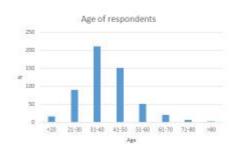
- Cost efficient
- Anonimity greater likelihood of providing sensitive data
- Possibility of surveying a greater number of fisherman in comparison to face-to-face interviews
- Participants can access the survey at their own convenience (no pressure)

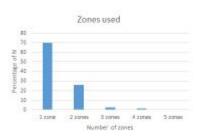
### CONS

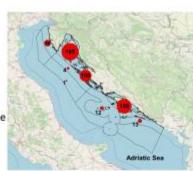
- Non-probabilistic survey unknown bias
- Only internet users can access the survey
- Participants are probably more avid avidity bias
- Anonimity provides a possibility of sabotage
- Recall survey may not reflect reality

# RESULTS

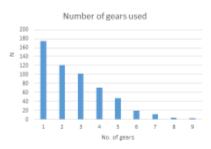
- In total 604 participants accessed the survey
- Majority were males, only 2.3% females
- 549 (91%) were users of yearly licence results are presented only for this sample
- Majority of respondents were between 30 and 40 years old (38%)
- Majority of fisherman usen only one zone for fishing operations (70%).

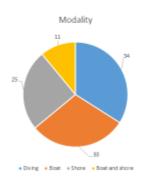


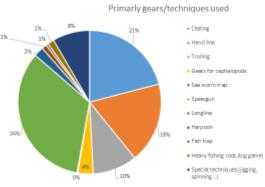




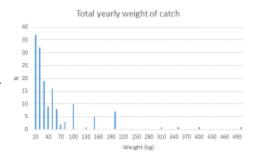
- Diving was most common modality, followed by boat and shore
- Number of fishing gears used was between 1 and 9.
- Majority (31%) used one gear exclusively.
- Most frequent primary techniques/gears used were Speargun (34%),
   Casting (21%) and Hand line (18%).

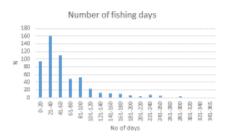






- Question about yearly total catch weight was obtained for smaller subsample (N=154)
- Majority of respondents caught between 0,5 and 50 kilos per year (73%).
- Mean yearly weight was 65.8 kg (± 144 kg)
- There was no significant difference between yearly weight of catch of different modalities (boat, shore or diving)
- Number of fishing days per year was between 3 and 360 (mean 62.4 days).
- Close to 50% of respondents spent between 20 and 60 days fishing
- Significantly greater number of days was spent fishing in the period between 1st of July and 30th of September

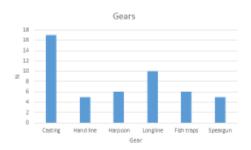


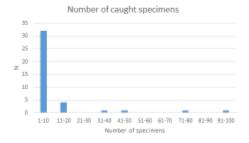


# EEL (Anguilla anguilla)



- 7.5% of respondents caught eel in 2018
- Most used technique/gear was casting
- Average yearly weight per fisherman was 5,8 kg

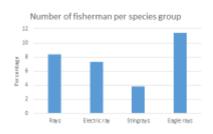


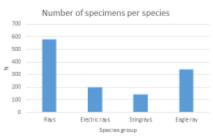


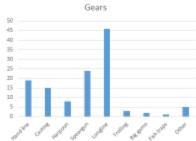
# RAYS, STINGRAYS AND EAGLE RAYS

- 17,3 % of respondents caught some of these species groups in 2018
- Longline was the most commonly used gear
- Average yearly weight per fisherman was 20 kg

Gear	Average daily weight (kg)	N
Hand line	0,6	10
Casting	0,9	5
Harpoon	0,2	4
Speargun	0.8	18
Longline	1,7	33







# Cyprus Marine Recreational Fisheries pilot study

### Nikolas Michailidis

Department of Fisheries and Marine Research

Ministry of Agriculture, Rural Development and Environment of Cyprus

Regional Coordination Group Mediterranean & Black Sea
Workshop on Recreational Fisheries
8-9 March 2021

### Cyprus 2017-2019 data collection work plan

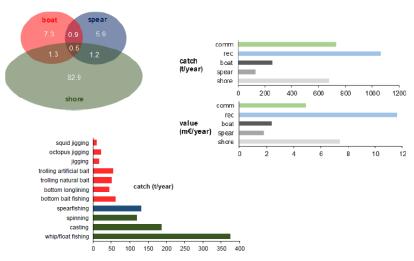
MRF pilot study - two 12-month recall telephone surveys

licensed fishers: random selection of known numbers

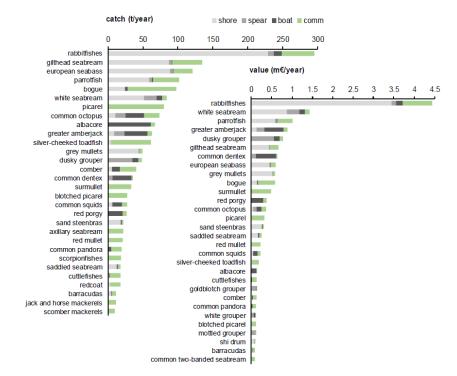
<u>shore fishers</u>: nationwide survey, full country coverage, target all men and women of all ages, random-multistage-stratified sampling per postal area and area type within (urban/rural)

### Results

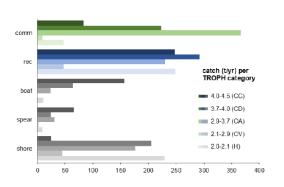
- 23.5 thousand marine recreational fishers in total (~2.7% of the population)
- 15 to 85 years old
- mostly male (very few women shore fishing)
- 18 m€/year expenditures on MRF
- MRF catch 1065 t/year, value 11.6 m€/year (coastal commercial fisheries: 730 t/year and 4.9 m€/year excluding pelagic longline catches ~600 t)
- CPUE (kg/year/fisher): shore 34, spear 66, boat 108

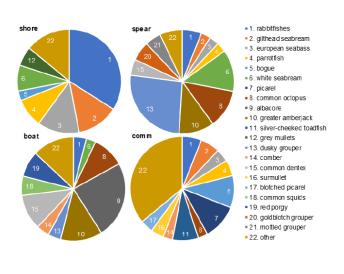


- 52 taxa or groups recorded (~60 species)
- rabbitfishes: by far the most important species in weight (invasive species)
- gilthead seabream and European seabass: 2<sup>nd</sup> and 3<sup>rd</sup> most important (mostly farm escapees)
- first four (+parrotfish): 1/2 of MRF catch (mainly from shore)
- rabbitfishes: by far the most important in value

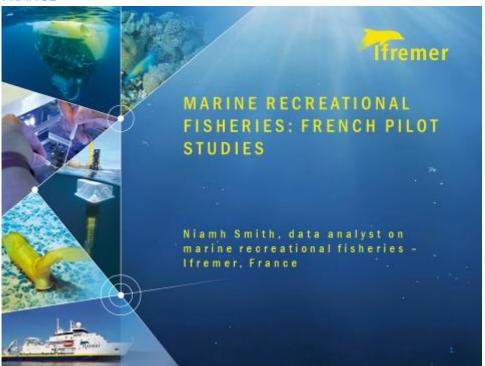


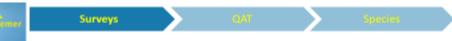
- some high TROPH species are mainly harvested by MRF (mainly boat and spear)
- many commercial species are not important for any type of MRF





# **FRANCE**



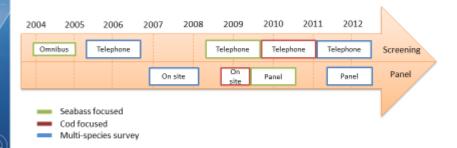


# French context

- No licence system or register, no obligation to report catches (other than specific authorisations)
- ❖ Regulated activity → closing periods, limited number of authorised gears, ban on fishing certain species
- ❖ Diversified practices → shellfish gathering, underwater fishing, onshore/offshore fishing
- Coastline spread over 3 marine sub-regions + overseas

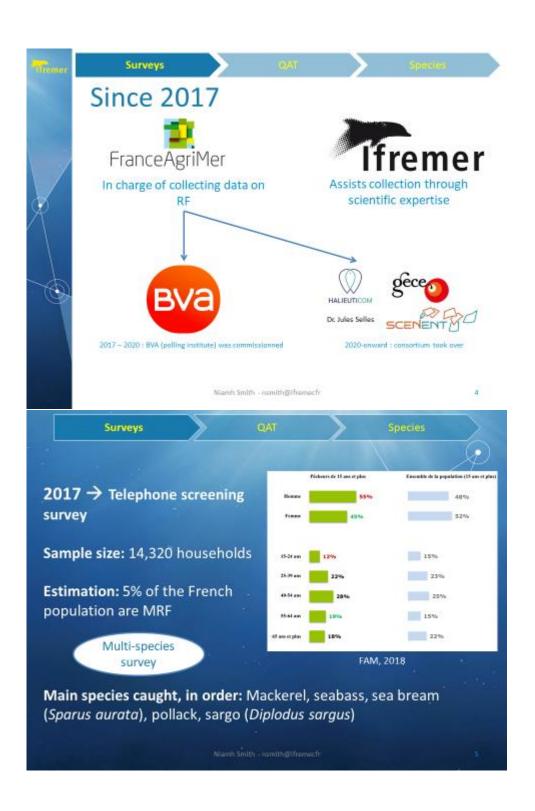
Niamh Smith - nsmith@ifremer.fr

# Historical surveys



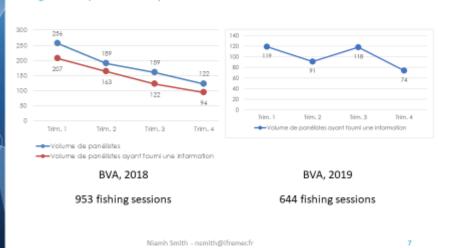
However, there is currently no database in which this data has been stored.

Updated from Bellanger and Levrel, 2017 Niamh Smith - nsmith@ifremer.fr

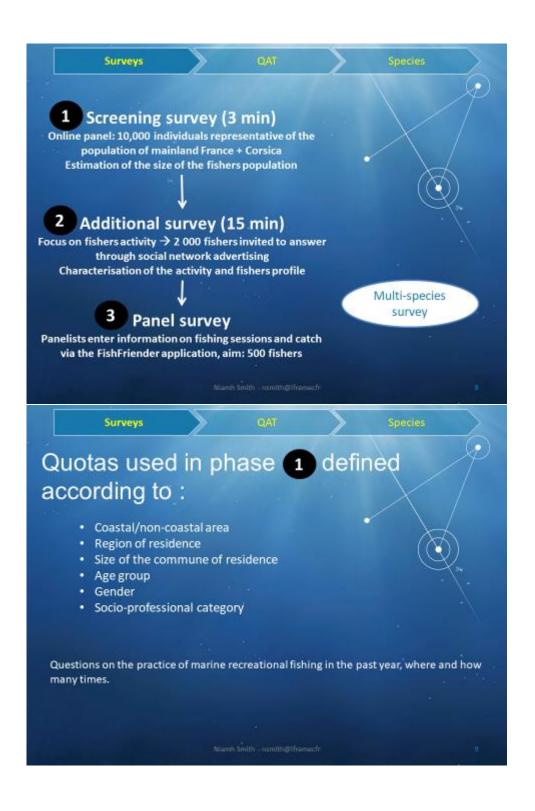




# Significant panelists drop-out rates led to unreliable catch estimations



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Surveys QAT

Fishers identified in phase 1 are invited to participate in phase 2 + social network advertising + MRF federation mailing list

# Quotas used in phase 2 defined according to :

- · Region of residence + distance to the coast
- · Age group
- · Gender
- Avidity
- Fishing area (7 sub-regions on French coast and 3 in the Med sea)
- Fishing mode (on shore, offshore, underwater)



Exclusion of fishers who exclusively practise onshore shellfish gathering Questions on the expenses, habits, motivations, perceptions towards management and resource availability, etc.

Niamh Smith - nsmith@ifromor.f

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Surveys

QAT

Species

# Changes compared to previous surveys

- New tools such as online panel, social media and web/smartphone application
- Additional screening phase to enhance the description of the activity by increasing fishers sample size
- Involvement of recreational fishing federations
- Number of additional questions to better characterise fishers activity and profile
- To limit drop out → enable access to premium functionalities of the FishFriender app.

# Assessing the impact of the pandemic on MRF activity

New questions:

 If respondent didn't fish in 2020 but did in 2019, he is asked: Would you have fished in 2020 had it not been for the Covid 19 pandemic?

If yes, further questions are asked on 2019.

 How did the pandemic affect your recreational fishing activity? Increased number of sessions, decreased number of sessions, no impact.

Niamh Smith - nsmith@ifremer.fr

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#### QAT

Target population	Have all components of the target population been identified?	N	Non-resident fishers not identified.
	Is there a component of the target fishery that is not covered by the survey and if so, what was it?	Υ	The sample is selected from a sub-sample of the French population made up of individuals registered on the online panel, therefore anyone who is not registered has a zero probability of being selected.
	Are there elements of the target population that are not accessible, and if so, what are they (e.g. private access points or unlisted telephone numbers)?	Υ	registered has a zero probability of being selected.
Sample frame	What is the sample frame(s) and the associated PSU?		1: List of people registered on the online panel, PSU = contact information 2: People who participated in phase 1 and who agreed to answer a detailed questionnaire on their activity + people invited through social media advertising + people contacted through fishing federations, PSU = contact

Niamh Smith - nsmith@ifremer.fr

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Surveys	QAT	Species
---------	-----	---------

a.	Does the sampling frame adequately cover the target population?	Υ	
Sample frame	Are there elements of the sample frame that have been deliberatly excluded, and if so and what were they (e. g, quiet season)	Υ	Fishers who exclusively practise onshore shellfish gathering were excluded from phase 2, as this type of survey does not enable to estimate the impact of recreational fishing on local stocks.
ation	Are the strata well defined, known in advance (spatial/temporal)?	N	No licensing system or register.
Stratification	Is there adequate sampling within each stratum (e.g. days surveyed during weekend/summer)?	Υ	
	Is sampling probability based (e.g. stratified random, PPS, - Proportional to Population Size)?	N	Quota sampling.
Selection	Has the survey been designed to achieve target precision in an analytically optimal fashion?	Υ	
S	Have issues associated whith ethics/permits and privacy been adressed?	Υ	
	-	_	

Niamh Smith - nsmith@ifremer.fr

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Surveys QAT Specie

# MEDAC List of priority species to survey and French position

This list of species was identified by the MEDAC and is partly in line with the studies carried out in French Mediterranean MPAs (Kayal et al., 2020)

Species	IUCN red list	Management measures	Mark (Y/N)	Minimum catch size (Y/N)	Closing period (Y/N)
Sparus aurota	LC		γ	Υ	N
Dicentrarchus labrax	NT	Stock included in MSFD	Υ	Y	N
Sciaena umbra	VU	RF prohibited	N	/	/
Epinephelus spp.	EN	RF prohibited	N	/	/
Diplodus sargus	LC		Υ	Y	N
Umbrina cirrosa	VU		N	N	N
Dentex dentex	VU		γ	N	N

To date, no reliable data has been collected in France on MRF targeting the stocks listed above.

Given the results of previous surveys, France will pursue the effort in collecting data but cannot guarantee the production of reliable catch estimates for specific species.

No complementary surveys are programmed before the end of the ongoing survey.

Niamh Smith - nsmith@ifremer.fr

# Recreational fisheries in Hellas PILOT SURVEY 2017- 2019

Anastasios Papadopoulos - Fisheries Research Institute

Kostas Kapiris† - Hellenic Center for Marine Research

Paraskevi Karachle - Hellenic Center for Marine Research

# Recreational fisheries in Hellas PILOT SURVEY – RESULTS 2019 Duration 2017-2019 To estimate for the first time the number of Recreational fishermen in the country. To record their fishing practices and avidity To collect biological and quantitative data of their catches.

Diary

Survey

Screening

Survey

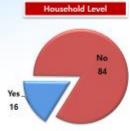
On site

Survey

#### **Screening Survey**

2018 - 5.516 interviews Residents 15+ 2019 - 16.501 interviews Residents 15+





- 13% men
- 4% women
- 16% of Households
- Mainland & Crete 2-10%
- Aegean Islands 14-15%



#### **Screening Survey**

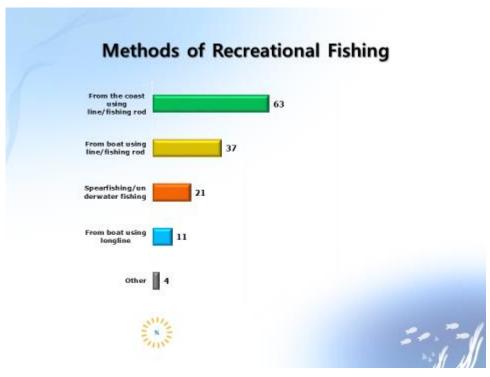
2018 - 5.516 interviews Residents 15+ 2019 - 16.501 interviews Residents 15+



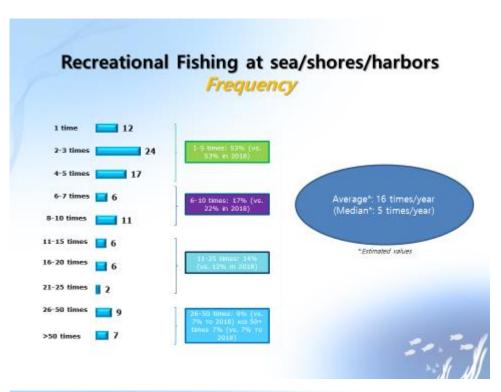


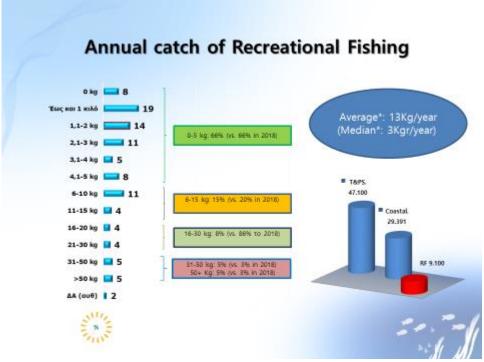
- 13% men
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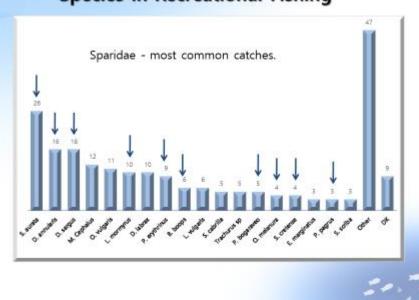




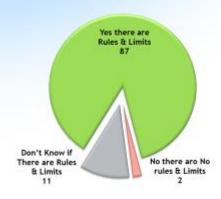


#### **Expences Recreational Fishing** OC (spont) \_\_\_\_\_ 13 Nothing: 13% (vs. 9% to 2018) 1-24€ 1-50€ 43% (vs. 48% to 2018) 17 25-50€ ": Estimated values 51-75C S 51-100€: 13% (vs. 16% to 2018) 76-100C S 101-150C G Higher costs are associated with avidity, sex (men) and age 101-250€: 12% (vs. 14% to 2018) 151-250C G (55-64 years old) 251-500€ 7 251-500£: 7% (vs. 3% to 2018) Lower costs are found between the unemployed and housewives 501-999€ 4 No significant differences found regarding other demographics such as geographical location, marital status, education 1000+€ ■ 4 DK/NR 12

#### **Species in Recreational Fishing**



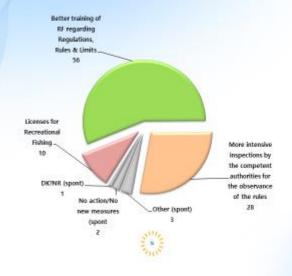
#### Awareness of Rules & Limits



- Awareness high in all demographic groups (lower in young people, the unemployed and hous ewives)
- does not differ based on geographical analysis



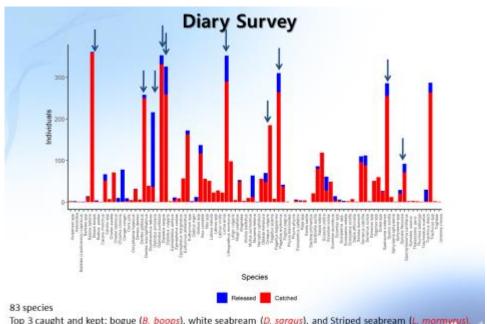
#### Attitude towards management of RF



- better training/info is higher amongst unemployed and
- young péople No differences based on geographical analysis

#### **Diary Survey**

- 127 fishermen from the first screening survey in 2018
- 400 fishermen from the 2nd screening survey in 2019
- 92 (17%) actually participated from both surveys reporting
   352 trips in total (124 shore, 165 boat, 63 spearfishing) from 24 prefectures of the country.



Top 3 caught and kept: bogue (*B. boops*), white seabream (*D. sargus*), and Striped seabream (*L. mormyrus*). Top 3 released: European conger (*C. conger*), Annular seabream (*D. annularis*), Striped seabream (*L. mormyrus*).

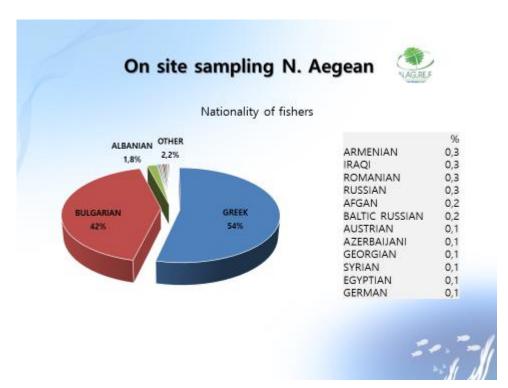


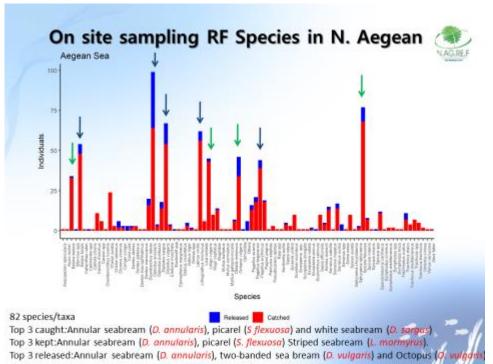
#### On site sampling

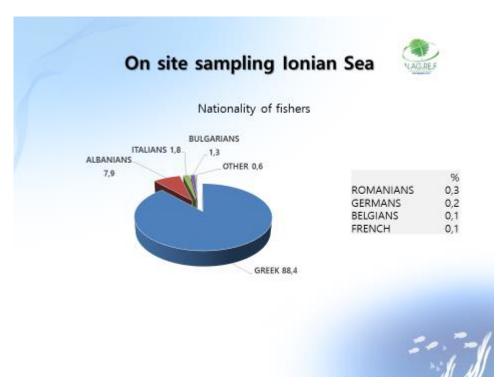


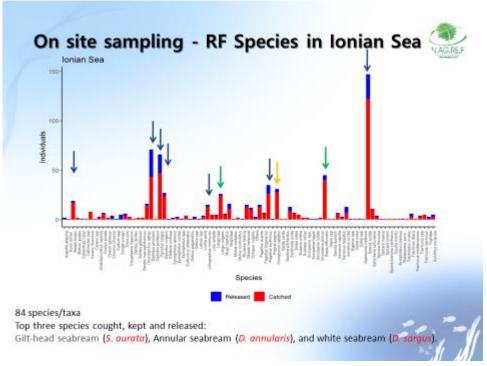
- · Four seasonal trips.
- · Four days/24-hour basis
- Catches from all three modes of fishing.
- 2080 fishing trips
- 853 in N. Aegean (728 Shore, 107 boat, 12 Spearfishing),
- 768 in the Ionian Sea (593 Shore, 167 boat, 5 Spearfishing)
- 459 in the Saronicos (374 Shore, 68 boat, 17 Spearfishing)
- 82 different species/taxa in N. Aegean, 84 in the Ionian Sea, 59 in Saronikos Gulf.







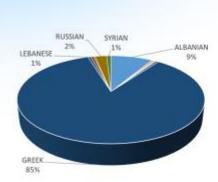




#### On site sampling Saronikos Gulf



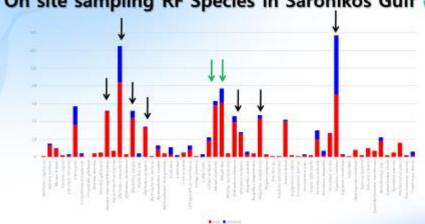




	%
GREEK	85.2
ALBANIAN	8.6
RUSSIAN	2.4
SYRIAN	0.9
EGYPTIAN	0.6
LEBANESE	0.6
MOLDOVAN	0.6
AMERICAN	0.3
BULGARIAN	0.3
CYPRIOT	0.3
ROMANIAN	0.3

#### On site sampling RF Species in Saronikos Gulf





#### 59 species/taxa

Top 3 caught: Dusky spinefoot (S. luridus), Annular seabream (D. annularis), Mullets (Mugilidae) Top 3 kept: Mullets (Mugilidae), Annular seabream (D. annularis), Dusky spinefoot (5. luridus)

Top 3 released: Dusky spinefoot (5. luridus), Annular seabream (D. annularis), M. rainbow wrasse (C

#### Plans for the period 2020-2021 and forward

- 2020 & 2021 •continue with on site sampling
- •Extending the sampling area geographicaly
- ·More representative sample.



#### Plans for the period 2020-2021 and forward

https://erasitexniki.inale.gr/

Site & App Additional methods of collecting data







#### **ITALIAN PILOT STUDY**

#### RELATIVE SHARE OF CATCHES OF RECREATIONAL MARINE FISHERIES

# COMPARED TO COMMERCIAL FISHERIES ITALIAN WORK PLAN FOR DATA COLLECTION IN THE FISHERIES AND

AQUACULTURE SECTORS 2017-2019 (EC REG 1004/2017)

UPDATE FEB. 2021

UNIMAR

A. MARIANI- C. SERMONETA-P. DI DATO-B.MARZOCCHI



### RECREATIONAL FISHERIES MEANS NON-COMMERCIAL FISHING ACTIVITIES EXPLOITING LIVING AQUATIC RESOURCES FOR RECREATION OR SPORT

#### TERMS OF REFERENCE:

ASSESS THE SHARE OF CATCHES FROM RECREATIONAL FISHERIES COMPARED TO COMMERCIAL CATCHES, FOR ALL SPECIES FOR WHITCH CATCH ESTIMATES ARE REQUIRED UNDER THE WORK PLAN;

DETERMINE THE NUMBER OF RECREATIONAL FISHERMEN, VALIDATE THE CURRENT MIPAAF LIST OF REGISTERED FISHERMEN;

MONITOR FISHING ACTIVITY IN TERMS OF GEARS AND EFFORT;

COLLECT BASIC INFORMATION ON RECREATIONAL CATCHES, AND MACRO-DATA ON OVERALL ECONOMIC IMPACT OF THE ACTIVITY;

I PHASE (2018-2019) Step 1. Analysis and validation of the Register of fishermen of the Ministry of Agricultural, Food and Forestry Policies (Min.Decr. 6 Dec 2010)

Step 2. Estimation of variables of interest through:

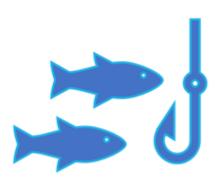
Expert interviews (elicitation techniques)

Sample survey at national scale (with the collaboration of Claudio Viva (C.I.B.M. Livorno) and Fabio Grati (CNR Ancona)



The number of registered anglers in 2019 was 1.077.048
Ministry of Agricultural, Food and Forestry Policies (MIPAAF)

In order to be able to fish at sea, it is compulsory to communicate the activity to MIPAAF



#### The list of registered fishermen, in MIPAAF database, contains:

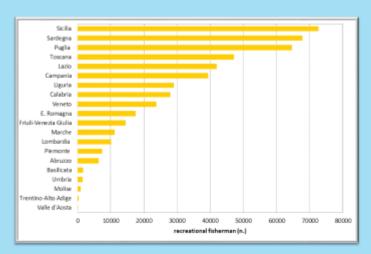
- personal information (name, surname, birthday date, tax code, citizenship, residence, address, profession)
- 2. membership of sport fishing association (if possible)
- 3. fishing areas (region-Nuts2)
- 4. fishing gears
- 5. fishing techniques
- boats



# STEP 1 ANALYSIS AND VALIDATION OF THE MIPAAF DATABASE

# STEP 1 ANALYSIS AND VALIDATION OF THE MIPAAF DATABASE Starting through a crosschecking of data, records have been checked and validated. Fishing load Fishing are (sampling unit): 494634 records (1.077.048) WALTER W





STEP 2.
ESTIMATION OF VARIABLES OF INTERESTS:
EXPERTS INTERVIEWS THROUGH ELICITATION TECHNIQUES

"Expert elicitation in the context of uncertain quantification aims at a credible and traceable account of specifying probabilistic information regarding uncertainty in a structured and documented way."
[Hora, 1992]

Face to face Interview (about one hour each) on fishing effort and catch composition

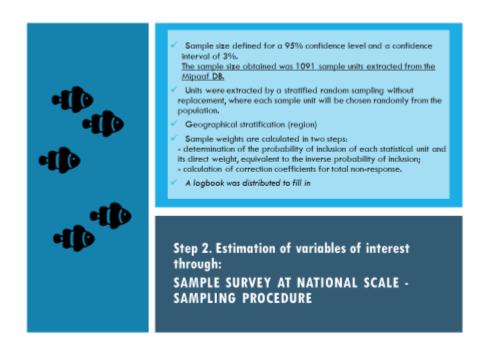
Estimation of Minimum, Maximum, Mode (most probable value) for each phenomenon of interest

Using fixed interval method (Put ten "X" in five intervals of equal length)

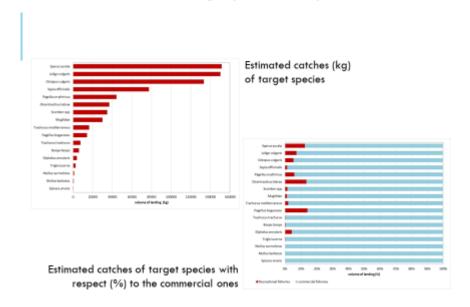
• Check of the shape of the curve and preliminary results

Feedback from expert to validate their opinion

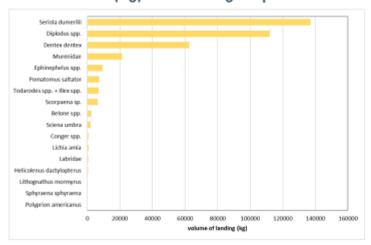
Final results: First estimate of efforts and catches distribution. Tested reliability of the questionnaire for the following phase of national survey



#### Estimated recreational catches of target species with respect to commercial catches



#### Estimated catches (kg) of non target species



#### Proposed list of species for future surveys

On the base of a threshold of 5% of recreational catches respect to the total catches (target species), and on an estimate of the relevance of non target species (not included in the list from data collection), the following list of species is proposed:

- Dentex dentex
- Dicentrarchus labrax
- Diplodus spp.
- Ephinephelus spp.
- Loligo vulgaris
- Octopus vulgaris
- Pagellus erythrinus
- Pagellus bogaraveo
- Seriola dumerili
- Sciaena umbra
- Sparus aurata

N.B. it is to evaluate if asking for the group of species or for the single species

#### II Phase (2020-2021)

Some constraints carrying out the first phase has suggested to implement a new sample design

A second phase was then proposed to tune and implement the methodology previously adopted, in view of a final proposal for a routine survey in the new EU Map

I step - Telephone survey (2020)

II step - Sample survey (2021)









CATI (Computer Assisted Telephone Interview) and CAMI (Computer Assisted Mobille Interview)

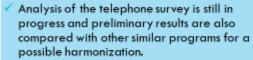
Selection of the frame (Italian population >15). Coastal regions considered (values for other regions estimated through donor technique)

> Telephone calls (13.780 calls) (2 October – 9 November 2020)

Questionnaire for the estimation of number and distribution of the fishermen

Sample	Nuts 2
2.856	Abruzzo
2.988	Basilicata
3.855	Calabria
6.087	Campania
4.546	Emilia Romagna
2.972	Friuli
6.364	Lazio
2.653	Liguria
	Lombardy
3.194	Marche
3.530	Molise
-	Piedmont
13.588	Apulia
8.005	Sardinia
10.417	Sicily
-	Trentino
3.691	Tuscany
-	Valle d'Aosta
	Umbria
4.184	Veneto
78.930	Italy



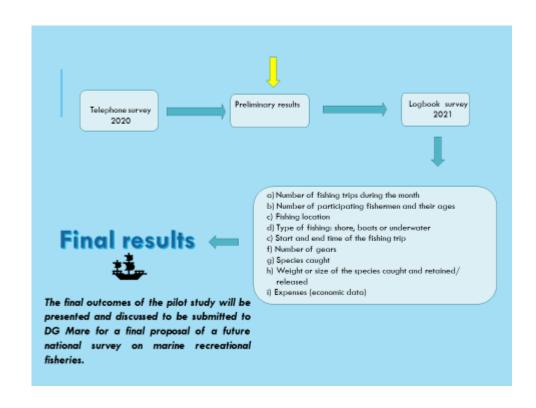


Preliminary estimates suggest a range of 1.400.000 - 1.600.000 as a total number of marine fishermen



In the meantime, last step has launched with the preparation of a final sample survey.

The survey is foreseen to be carried out through logbook distributed to a panel of fishermen in the italian regions.



#### **WORKSHOP ON RECREATIONAL FISHERIES**



#### **RECREATIONAL FISHING IN MALTA**

- Recreational fishing in Malta is divided into two main sectors, depending on the vessel registration:
  - Non-commercial "MFC"-type vessels, registered in the National Fleet Registry with the Department of Fisheries. These are issued a fishing license and can use minor fishing gears.
  - Sport "S"-type vessels, registered in the National Maritime Register with Transport Malta. These do not require a fishing license, and are restricted to sport fishing gears.
- Land-based recreational fishers do not require a fishing licence.

#### **RECREATIONAL FISHING IN MALTA**

- Most commercial species are permitted for capture through recreational fishing activities, with few being restricted. Notable restricted species include Xiphias gladius, which cannot be caught, and Thunnus thynnus, which requires a dedicated permit for limited capture.
- Recreational fishers must observe minimum size regulations, however they are not obligated to keep a logbook or otherwise report their catches.
- Fish caught through recreational fishing are for personal use only and cannot be sold commercially.

#### **PILOT STUDY - OBJECTIVES**

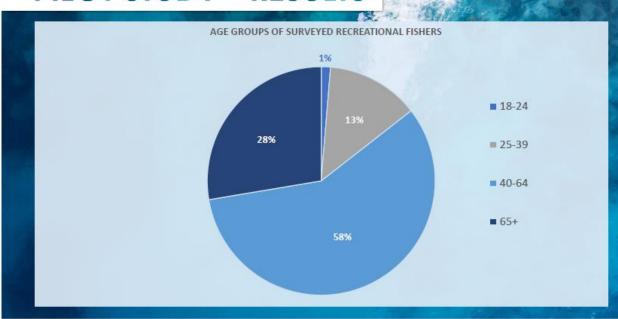
- The aim of the study was to assess the share of catches of select species from recreational fisheries in relation to commercial fisheries.
- The target species were selected in accordance with Table 3 of the Commission Implementing Decision (EU) 2016/1251, and are predominantly ICCAT-monitored species.
- X. gladius is absent as it cannot be caught by recreational fishers.

SCIENTIFIC NAME	COMIMON NAME
Auxis rochei	Bullet tuna
Auxis thazard	Frigate tuna
Coryphaena hippurus	Dolphinfish
Euthynnus alleteratus	Atlantic back skipjack
Katsuwonus pelamis	Skipjack tuna
Prionace glauca	Blue shark
Sarda sarda	Atlantic bonito
Thunnus alalonga	Albacore tuna
Thunnus thynnus	Bluefin tuna
N/A	Demersal elasmobranch
N/A	Pelagic elasmobranchs

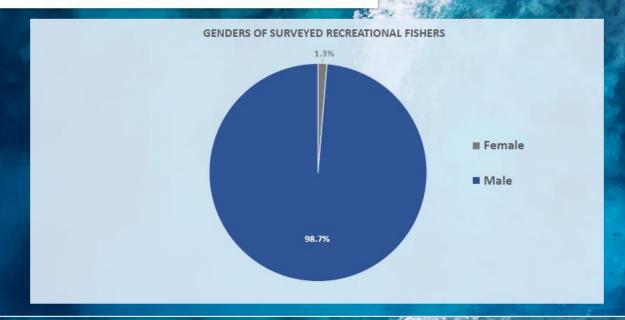
#### **PILOT STUDY - METHODOLOGY**

- Survey was drafted and carried out by a sub-contractor in two phases between 2018 – 2019. These surveys were conducted inperson with the recreational fishers.
- Total of 152 recreational fishers with "MFC" registered vessels and the corresponding licenses were surveyed across this period.
- Data collected included information on the fisher, basic fishing effort (such as distance from the shore and seasonality of fishing), and catches of the target and other non-target species.

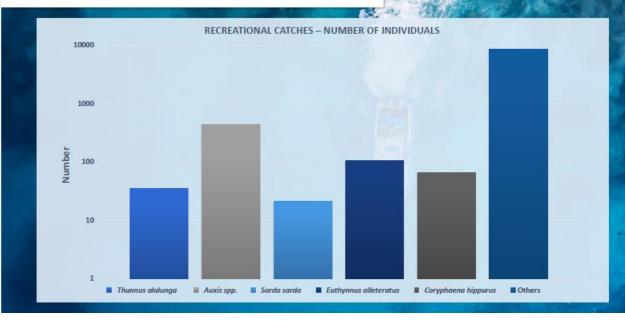
#### **PILOT STUDY - RESULTS**



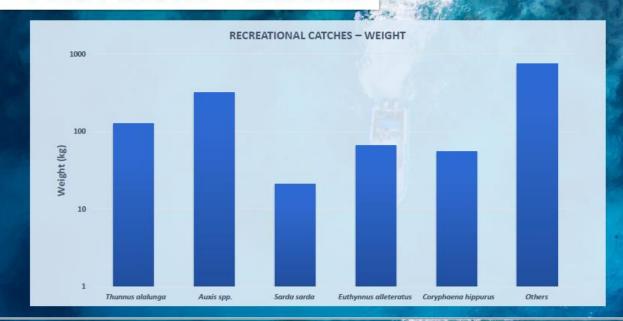




#### **PILOT STUDY - RESULTS**



#### **PILOT STUDY - RESULTS**



#### **PILOT STUDY - DISCUSSION**

- Due to a number of issues with the data, the DFA is not fully confident in this pilot study and its findings.
- The results of the survey suggest that the catches of "MFC" recreational fishers (of both select target species and other nontarget species) are negligible, particularly when compared to commercial catches.
- Further study is required in order to more accurately assess the real contributions of recreational fishers towards the total Maltese catch.

#### Recreational fisheries in Romania

Valodia Maximov George Tiganov Catalin Paun

#### **Duration of pilot study**

- Two years. Start in 2020, January 1<sup>st</sup>, and end on 31<sup>st</sup> December 2021.
- As the recreational fishing activity in Romania is seasonal, it
  usually starts at the beginning of the second quarter and ends
  at the middle of the fourth quarter, being largely conditioned
  by the hydroclimatic state and the migration of the fish
  species that reach the Romanian coast for feeding and
  reproduction, situation that requires the temporary use of
  certain categories of gears and suitable fishing techniques, we
  consider that the time required for the operation of the pilot
  study should be two calendar years (2020-2021), and the
  results will be available in 2022.

- Recreational fishing on the Romanian coast of the Black Sea can be done both from the shore, dams and from the boat, and the baits used can be natural (shells, frames, fish or poultry) or artificial (fish forms made of metal, 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 RF are: fam. Gobiidae, Carangidae, Mugilidae, Belonidae, Mullidae, Pomatomidae and sometimes Clupeidae 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 blue fish 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.
- 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 boat or on the docks
  - fly fishing for garfish on the docks.
- Boats used are in classes of lengths 0 6 m and 6 12 m and made of engineered wood, fiberglass or sheet metal or on frames.
- The fishing is done from sunrise to sunset and the total catch should not exceed 5 kg per person / day, all detained fish must be within the legal limit length- minimum conservation side.

#### 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.

The questionnaire completed by each fisherman contain the information regarding species, total catch, date and the area were they fished in the previous year.

#### 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.

#### Quality of data collected

After completing the questionnaires by each
fisherman, they are taken online with NAFA support
by NIMRD "Grigore Antipa" who after a thorough
verification of the data (cross-comparing the data
from the questionnaire with those from other
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 from various sources.

# Recreational fishing - Free time fishing

Slovenia

#### Surveillance of free time fishing

- 1. Sport fishing on the basis of an year license
- 2. Sport fishing with Spear guns on the basis of an year permit
- 3. Recreational fishing on the basis of daily and weekly permits
- 4. Organized sports competitions
- 5. Recreational fishing from the coast for which a permit is not required.

## Sport fishing on the basis of an year license

- 807 year permits 49 % reportings
- 4303 days, 14 kg on fisherman
- Most caught fishes: Merlangius, common pandora, cuttlefish

# Sport fishing with Spear guns on the basis of an year permit

- 26 year permits 80 % reportings
- 283 days, 13 kg on fisherman
- Most caught fishes: European bass, mullet, european conger

# Recreational fishing on the basis of daily and weekly permits

- 834 day permits and 16 week permits
- 898 days, 1,3 kg on day
- Most caught fishes: Merlangius, common pandora, cuttlefish

#### Organized sports competitions

- 54 competitions
- 929 kg of fishes
- Most caught fishes: Spicara smaris, common pandora, Merlangius merlangus

#### Recreational fishing from the coast

- Permit is not neaded
- Control of fishering by inspection

#### **SPAIN**



#### Spanish Pilot Study on Recreational Fisheries

Spanish General Secretariat for the Fisheries.

General Deputy on Scientific Investigation and Marine Reserves.

Juana Poza Poza Ricard Buxó de la Peña



MINISTERIO DE AGRICULTURA, PESCA Y ALIMENTACIÓN

SECRETARÍA GENERAL DE PESCA



# SPANISH REGIONS, ADMINISTRATIONS AND LEGAL FRAMEWORK

- Central Administration (General Secretariat for the Fisheries) and Regional Administration (Autonomus Regions Departments).
- Spanish Constitution (1978): Coastline and External waters.
- Legal Framework: Law 3/01 & Decree 347/11→Licences issued by Autonomous Regions (AR) (exception: protected species such as Bluefin tuna or Hake) + Regulation (EU) 2017/1004: data-collab.
- There is no harmonised categorisation of licences, however >
  Coastline, on boat and spearfishing.



#### PILOT STUDY: GENERAL INFORMATION

- Developed by the General Secretariat for the Fisheries of the Spanish Ministry of Agriculture, Fisheries and Food.
- 2. Started in July 2020 and ends in March 2021.
- The main objectives have been:
  - · Characterize and estimate catches and discards by MARINE recreational fishing.
  - · Identify the impact on species resulting as target-species.
  - · Compare and evaluate the impact on professional fisheries.
  - Development of a proposal of survey for recreational fishery to comply with DCF.
- This study has been commissioned and supervised by an official scientific institute.
- 5. All data in this report are preliminary until the final report and evaluation by the scientific institute.



## METHODOLOGY: General information.

- Collection of all licences in force in 2020 issued by the ARs and categorization (boat, coast and spearfishing).
- ➤Two Regions: MEDITERRANEAN & ATLANTIC.
  - Autonomous Region= Sample Entity → MED: Catalonia, Valencia + Murcia, Andalucía, Balearic Islands and Melilla.
  - · Ceuta isn't included.
  - · Valencia and Murcia unified into a single sample entity.
- ➤ DATA RESEARCH/COLLECTED:
- VARIABLES: Catches, discards (KG) and Effort (DAYS).
- Fishing techniques.
- Main season and area.
- Other species interactions.
- ➤ DATA COLLECTION: Telephone calls.



# METHODOLOGY: POPULATION AND SAMPLING FRAME

- The population frame is constituted by the total number of available license's, through which the sample size is calculated for each type of license for each sampling entity.
- The sample size has been calculated considering fishing effort (days), as this is considered to be the variable with the highest variance.
  - Statistical confidence level of 95%.
  - Standard deviation of 20.
  - Maximum statistical error of 4 days.
- Sampling: simple random method without replenishment



# METHODOLOGY: POPULATION AND SAMPLING FRAME

Entidad	Tipo de licencia	"	MUESTIKA
AGM/GENERAL DEL ESTADO	Pesca a bordo de embarcación	9,345	95
CANTABBIA	Mixta Costa y/o embarcación	20.217	96
	Pesca de buceo	369	76
	Mixte Costa y/o embarcación	57.756	96
	Pasca de bucao	5.625	54
COMUNIDAD VALENCIANA Y REGION	Pesca a bordo de embarcación	7.316	96
DE MURCIA	Pesca a pie Desde costa	49, 104	96
	Pasca de buceo	3.369	93
	Mixta Costa y/o embarcación	99.281	96
	Pesca a bordo de embarcación		5
	Pesca de buceo	3,650	94
	Pasca a bordo de embarcación	12.072	75
	Pesca a pie Desde costa	21.638	96
	Pesca de buceo	1.364	90
PRINCIPADIO DE ASTURIAS	Pesca a bordo de embarcación	13,565	95

	Pesca a pie Deode costa	62,782	96
	Pesca de buceo	2.208	92
PAIS VASCO	Mixta Costa y/o embarcación	49,449	96
	Pesca de buceo	1.509	50
	Pesca a bordo de embarcación	115.670	96
ANDALUCIA	Peace a pie Deade costa	222.575	
	Pesca de buceo	4.505	
	Mixta Costa y/o embarcación	92.392	96
CANAMAS	Pesca a bordo de embarcación	9.196	75
	Pesca de buceo	7.542	
	Pesca a pie Desde costa	712	
MERIA	Pesca a bordo de embarcación	505	
	Pesca de buceo	76	
Total		993.354	2.460

POPULATION FRAME: 883.354. SAMPLING FRAME: 2.468.



# METHODOLOGY: SURVEY SUMMARY FOR THE TELEPHONE CALLS.

The data was collected on paper and recorded in a database.

### ➤ SURVEY SECTIONS:

- General information of the license user: age, experience practicing recreational fishing, technique used according to the license and frequency.
- Effort: annual effort estimate, seasonality (fishing days during the year, amount of hours during the fishing day and peak months), fishing technique, number of gears per day and common fishing area.
- Catches: Species, total catches (kg/day), catches retained and released.
- Other information: Interaction with other species (seabirds, turtles or cetaceans) and personal comments.



# METHODOLOGY: SURVEY PRELIMINARY RESULTS (COVERAGE RATE).

- Positive survey (ctach and effort data).
- Negative survey: no answer, wrong telephone number, no use of the license or lengauge issues.

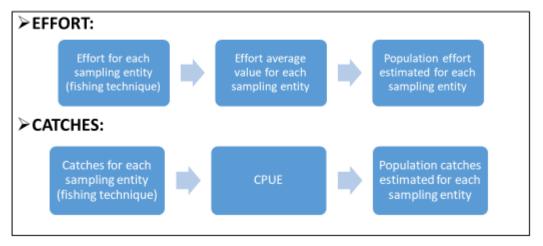
Cobertura de la encuesta d Por tipo resulta		itivos
Resultado 🔻	N2	%
Positiva	2.242	40,48%
Pescador con muy baja avidez	150	2,71%
Empresa sin Titular	3	0,05%
No contesta al teléfono	1.339	24,17%
No habla Español	24	0,43%
No responde a las preguntas	479	8,65%
No usa la licencia	437	7,89%
Núm. Erróneo	444	8,02%
Núm. no pertenece a nadie	247	4,46%
Salta contestador	6	0,11%
OTROS	168	3,03%
Total general	5.539	100,00%

adjustment of the population frame according to the number of unused licences

Marco Poblacional Final (Restando licencias sin uso estimadas)									
	Resultados por Entidad Muestral								
Numero de elementos	Tipo de licencia 🕆								
Etiquetas de fila •	Mixta Costa y/o embarcación	Pesca a bordo de embarcación	Pesca a pie Desde costa	Pesca de buceo	Total general				
ADM.GENERAL DELESTADO		8.773			8.773				
ANDALUCIA		83.300	135.975	4.737	224.012				
CANARIAS	83,593	8.912		7.543	300.048				
CANTABRIA	26.406			369	26.775				
CATAUUÑA	48.130			3.319	51.449				
COMUNIDAD VALENCIANA Y REGION DE MURCIA		6.683	33.915	3.280	43.878				
GALICIA	75.036	5		3.541	79.582				
ISLAS BALEARES		10.521	18.408	1,277	30.206				
MEULLA		398	556	68	1.022				
PAIS YASCO	44.317			1.309	45.626				
PRINCIPADO DE ASTURIAS		12.098	55.413	2.139	69.650				
Total general	278.462	130.690	244.257	27.582	681.021				



# METHODOLOGY: EFFORT AND CATCH CALCULATION.





## **GENERAL OUTCOMES: CONSIDERATIONS**

# PRELIMINARY REPORT: No specific data (figures) → OVERVIEW. OVER-DIMENSIONING OF DATA → BIAS:

- The impossibility of having a more segmented population. Mixing of licenses due to non-harmonisation of their typology.
- Increased frequency of response from expert fishermen.
- Respondents' memory bias
- Multi-modal activity: reporting catches on the basis of all fishing modes despite being told to refer only to the most frequent mode.
- The recall bias

#### HOWEVER:

- . The specific % composition is in line with other studies.
- The effort results fall within the estimated ranges the Scientific Institute considers acceptable.



## MEDITERRANEAN: EFFORT.

#### AVEREGE EFFORT VALUE:

• On boat: 45 days.

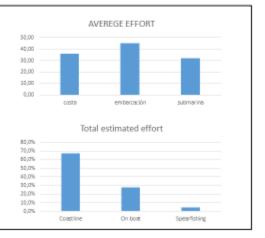
Coast-line: 36 days.

Spearfishing: 32 days.

### ESTIMATED POPULATION EFFORT:

Coast-line: 67%On boat: 28%.

· Spearfishing: 5%.





## MEDITERRANEAN: CATCHES.

### CATCHES/LICENSE-TECHINIQUE:

Coast-line: 47,9%.
On boat: 42,8%.
Spearfishing: 9,2%.

MAIN SPECIES: four species make up 55% of the catches: Gilthead seabream, European seabass, Groupers and Sargs (Sargo breams).

MAIN SPECIES-COASTLINE: Gilthead seabream and European seabass → Sargs and Sand Steenbras

MAIN SPECIES ON BOAT: Combers (Serrano), Sargs, Giltheadseabream and Little Tunny (Bacoreta).

MAIN SPECIES SPEARFISHING: Sargs, European

seabass, Groupers and Gilthead seabream >Octopus vulgaris.

Porcetanje de respuesta especie objetivo MEDITERRÁNEO			
Nombre	Especie	Porcentaje	
Dorada	Sparus aurata	26,83%	
Lubina	Dicentrarchus spp.	11,56%	
Mero	Epinephelus spp.	9,58%	
Sargos	Diplodus spp.	7,16%	
SIN NOMBRE	SIN NOMBRE	6,47%	
Dentón	Dentex spp.	5,52%	
Vaca	Serranus scriba	4,49%	
Pargo	Pagrus spp.	2,59%	
Calamar	Loligo spp.	2,4296	
Bacoreta	Euthynnus alletteratus	2,2496	
Pulpo	Octopus vulgaris	1,98%	
Salmonete	Mullus surmuletus	1,90%	
Bonito	Sarda sarda	1,55%	
Pez limón	Seriola dumerili	1,47%	
Raor	Xyrichtys novacula	1,38%	
Breca	Pagellus erythrinus	1,38%	
Herrera	Lithognathus mormyrus	0,86%	
Besugo	Pagellus spp.	0,86%	
Lampuga	Coryphaena hippurus	0,78%	
Atunes	Thunnus spp	0,78%	
Sepia	Sepia spp.	0,78%	
Jurel	Trachurus spp.	0,69%	
Caballa	Scomber spp.	0,69%	
Lisas	Mugilidae	0,60%	
Erizo	Paracentrotus lividus	0,52%	
Cabracho	Scorpaena spp.	0,35%	
Rape	Lophius spp	0,35%	
Anjova	Pomatomus saltatrix	0,35%	
Otras especies	Otras especies	3,9%	
	Total	100,00%	



# MEDITERRANEAN: CATCHES/LICENSES.





# MEDITERRANEAN: AREAS (GSAs)

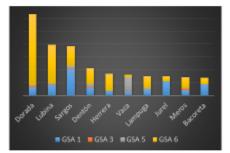
#### GSA 6 (Catalonia and Valencia):

- Gilthead
- European seabass.
- Octopus.
- Cuttlefish and Anchovy

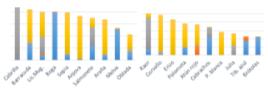
#### GSA 1 (Andalucía):

- Sargs
- Mackerels (Caballa)
- Red Porgu (Pargo)
- Bogue (Boga)





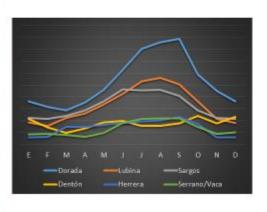


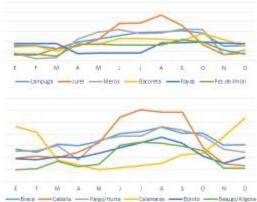




## MEDITERRANEAN: SEASONALITY.

**SUMMER** → Biology of the species (breeding), vacations and tourism.







## MEDITERRANEAN: DISCARDS.

# COAST-LINE AND ON BOAT (BOTTOM SEA FISHING: ROD AND WIGHTS):

 Gilthead seabream, Sargs, European seabass, Sand Steenbras → Size.

**SURFACE FISHING and SPEARFISHING:** less discard rate due to an adequate size, gastronomic interest and selectivity.

### CATCH & RELEASE: BIAS.

- Poor survey approach.
- · Respondents memory/bad understanding.



# IMPACT OF RECREATIONAL FISHING ON PROFESSIONAL FISHING

- ➤A total of 70 species were identified, of which 30 have been included as "other" as they together account for less than 2% of the total catch → 40 species.
- The 10 main species that make up 65% of the catches are: Gilthead seabream, European seabass, Sargs, Dentex spp, Sand Steenbras, Combers, Common dolphinfish (lampuga), Horse Mackerel (Trachurus spp), Gropuers (Mero) and Little Tunny (Bacoreta).
- In order to make a first approach on the impact of the RF on the profesional activity has compared the estimated data calculated on this pilot study with the catches registration of the profesional activity gathered on the General Secretariat for the Fisheries for the year 2019. Considering as well the areas and the fishing technique, resulting in three points of view:
  - The releation between the "target species" of the RF and the amount of catches performed by the Professional fishers (RF>PF)
  - The relation between the target species of the Professional activity and the amount of catches performed by the RF.(PF>RF)
  - Species were exists a relation of catches of the 50% between one and the other (50%).



# IMPACT OF RECREATIONAL FISHING ON PROFESSIONAL FISHING: MAIN SPECIES TARGETED BY RF.

- ➤ Species (65% catches): Gilthead seabream, European seabass, Sargs, Dentex spp, Sand Steenbras, Combers, Common dolphinfish (lampuga), Horse Mackerel (Trachurus spp), Gropuers (Mero) and Little Tunny (Bacoreta).
- ➤Only represent around 6% of the catches performed by PF.
- Distinctly littoral species inhabiting shallow coastal areas.
- For most of those species the main concern is the way RF could affect PF, specially small scale fisheries (SSF). Since a large part of the professional activity (50-60%) corresponds to this type of fleet with which they share a large part of the catch composition with the recreational activity, specially in GSA 6 and 5.



# IMPACT OF RECREATIONAL FISHING ON PROFESSIONAL FISHING: MAIN SPECIES TARGETED BY PF.

- The main targets species for the Profesional Anglers concentrated on: Mackerel (Jurel), Scombridae (Caballa), Octopus, Cuttlefish (Sepia) and Frigate tuna (Melva).
- Those species represent less then the 10% of the total catches performed by RF.
- This is because they are pelagic species found at greater depths where the commercial fleet can fish.
- However, the Recrational activity could be considered as a concern for the SSF regarding Octopus and Cuttlefish at GSA 6 and Frigate tuna at GSA 1.



### IMPACT OF RECREATIONAL FISHING ON PROFESSIONAL FISHING: MAIN SPECIES TARGETED BY PF: Species also caught in recreational and professional fisheries

- In this study, recreational and professional fisheries have been considered to compete for a species when the catches of one type represent 50% or more of the other.
- ➤ About 18% of the recreational catch is made up of species that could be of equal interest to the professional fishermen, particularly affecting Tuna and other species with commercial interest such as: Little Tunny (Bacoreta), Greater amberjack (Pez limón), Common Pandora (Breca), Common squid (Calamares), Atlantic bonito (bonito), Albacore (Atún Blanco) and Mullets (Mugílidos/lisa).
- Again the main fleet that could be concerned by this activity are the SSF, specially in GSA 6 and GSA 5 for squid-fisherman.



### OTHER CONSIDERATIONS

- Comments on the sighting of birds, sea turtles and cetaceans. Especially for the interaction of birds and turtles with lost or abandoned gear on the shore and seabed that gets caught (especially in nets).
- There is widespread concern among many users of the three types of licences about the decline in fishing. Both in the number of individuals and in their size.
- ➤ Illegal fishing: fishing without a licence, irregularities in the number of gear used, fishing for prohibited species and catches of undersized fish.



### **SUMMARY**

- About 70 species have been identified. Among these, special mention should be made of those species close to the coastline (Gilthead seabream, European seabass, Sargs, etc.) and others like cephalopods (octopus, squid and cuttlefish) and tuna-like.
- ➤ Effort: Coast-line > on boat > spearfishing.
- Catches: Coast-line VS on boat > spearfishing.
- Discards: coast line and on boat.
- ➤ Seasonality: Summer.
- ➤ GSA: 6 (CAT-VLC) > 1 (MUR-AND) > 5 (I.B).



## **FUTURE IMPROVMENTS**

- OVER-DIMENSIONING OF DATA → BIAS: Population segments (differences between licenses-category between AR and lack of contact numbers), lack of positive responses, dependence on the respondent's answers (quality).
- SURVEYS ON SIDE: Improve species identification and crosscheck the information collected through the surveys.
- DATA-TOOLS: App (in which fishermen declare and identify their catches) and include On-line surveys (instead of phone calls).



# Legislative Framework of Recreational Fisheries: Existing legislation and upcoming proposals at EU and GFCM level

DG MARE Unit D1

## Overview

- I. Overview of Legislation at EU level
- II. Overview of Legislation at GFCM level
- III. Next steps





# I. Overview at EU Level

- Between **8.7 and 9 million** recreational fishers (1.6% of the EU population)
- · Fishing for approximately 77 million fishing days
- 10.5 billion euros to the European economy

RF play an important **cultural role** and represent a **significant economic component** of coastal tourism, one of the main maritime sectors in gross value added and employment.



# I. Overview at EU Level

RF can also play a key role in the **fishing mortality** of stocks across Europe. According to a recent 2018 study commissioned by the European Parliament:

- RF contribution to total catches may vary widely
- From 1.8% for mackerel to 13-72% for European eel



**Lack of data on total catches** has led to significant bias in stock assessment and risks the provision of incorrect advice on fisheries management across Europe.



## I. Overview at EU Level

### Control Regulation

Council Regulation (EC) No. 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy

### Technical Measures Regulation

Regulation (EU) 2019/1241 of the European Parliament and of the Council on the conservation of fisheries resources and the protection of marine ecosystems through technical measures

### Western Mediterranean MAP

Regulation (EU) 2019/1022 of the European Parliament and of the Council establishing a multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea



### I. Overview at EU Level

Data collection and recreational fisheries:

- Compulsory for EU Member States to provide data on recreational fisheries under the Data Collection Framework
- Financial support under the EMFF for data collection also covers recreational fisheries









## I. Overview at EU Level

EP Report on the state of play of recreational fisheries in the European Union (2017/2120(INI))

- Focuses on current EU law on recreational fisheries
- · Identifies potential gaps in legislation
- Highlights the potential impact of recreational fisheries on stocks



# II. Overview at GFCM Level



# II. Overview at GFCM Level

In 2020, the General Fisheries Commission for the Mediterranean (GFCM) conducted a **questionnaire on recreational fisheries**, showing:

- · Recreational fishing takes various forms in the Mediterranean and Black Sea
- Different techniques (e.g. rod and line, spear gun, traps, long lines, hand-gathering)
- · Different locations (e.g. shore, boat and underwater)
- Different species (across regions and sub-regions)

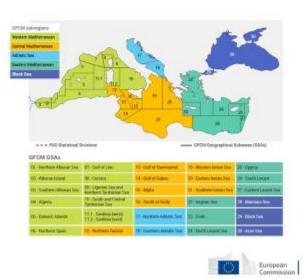


# II. Overview at GFCM Level

Regional Plan of Action for Small-Scale Fisheries in the Mediterranean and the Black Sea (RPOA-SSF) (2018)

GFCM Working Group on Recreational Fisheries (WGRF) (latest session 25-26 February 2021)

Handbook for Data Collection on Recreational Fisheries in the Mediterranean and Black Sea (2020)



# III. Next steps



# III. Next Steps

### EU level:

Revision of the Council Regulation (EC) No. 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy

### GFCM level:

Proposal on minimum rules for sustainable recreational fishing activities in the GFCM area of application

Upcoming GFCM Strategy for 2021-2030







### Main outcomes and conclusions of the GFCM Working Group on Recreational Fisheries (Online, 25-26 February 2021)

Anna Carlson, GFCM Secretariat

Regional Coordination Group, Mediterranean & Black Sea: Workshop on Recreational Fisheries | 8-9 March 2021



### Recreational fisheries data collection



- GFCM "Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea" endorsed
  - Grati, F., Carlson, A., Carpentieri, P. & Cerri, J. Forthcoming, Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea. FAO Fisheries and Aquaculture Technical Paper. Rome. http://www.fao.org/gfcm/activities/fisheries/mid-term-strategy/en/
- Outline:
  - Data collection
    - Defining the target population, sampling strategy, stratifying the population, estimating the sample size, selecting the sample
  - Methodology:
    - Offsite surveys (logbook surveys, recall surveys) and onsite surveys
  - Data analysis
  - Stakeholderengagement

### WORKPLAN:

 Provide technical assistance to additional countries interested in setting up RF data collection, in line with the "Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea".

## End-user needs: main recreational fisheries species

- Identify species from the GFCM DCRF priority species list that are present in recreational fisheries
- Identify additional species of interest for recreational fisheries based on agreed criteria



3

 Identify species from the GFCM DCRF priority species list that are present in recreational fisheries

Proposal (DCRF Group 1):

Proposar (DCKP Group 1).							
	GFCM subregions ▶	Western Mediterranean Sea	Central Mediterranean Sea	Adriatic Sea	Eastern Mediterranean Sea	Black Sea	
	GSAs ▶	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	12, 13, 14, 15, 16, 19, 20, 21	17, 18	22, 23, 24, 25, 26, 27	28, 29, 30	
	Countries >			Albania, Bosnia and	Cyprus, Egypt,	Bulgaria, Georgia,	
Scientific name	FAO 3-alpha code	Algeria, France, Italy, Monaco, Morocco, Spain	Italy, Greece, Libya, Malta, Tunisia	Herzegovina, Craatia, Italy, Montenegro, Slovenia	Greece, Israel, Lebanon, Syrian Arab Republic, Turkey	Romania, Turkey, Ukraine (Russian Federation)*	DCRF Species Group
Anguilla anguilla	ELE	×	×	×	×		Group 1
Coryphaena hippurus	DOL		×	×	x		Group 1
Lagocephalus sceleratus	LFZ	×	×	×	×		Group 1
Merlangius merlangus	WHG					×	Group 1
Mullus barbatus	MUT	×	×	×	×	x	Group 1
Pagellus bogaraveo	SBR	×					Group 1
Pterois miles	UHQ	×	×	×	×		Group 1
Scophthalmus maximus	TUR					x	Group 1
Sepia officinalis	стс			×			Group 1
Trachurus mediterraneus	HMM					×	Group 1
Subtotal - Group 1	species per subregion	5	5	6	5	4	

### Identify species from the GFCM DCRF priority species list that are present in recreational fisheries

Proposal (DCRF	Group 2):	Western Mediterranean	Central Mediterranean	Adriatic Sea	Eastern Mediterranean Sea	Black Sea	
	GFCM subregions ►	Sea	Sea		Mediterranean sea		
	GSAs ►	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	12, 13, 14, 15, 16, 19, 20, 21	17, 18	22, 23, 24, 25, 26, 27	28, 29, 30	
	Countries >			Albania, Bosnia and	Cyprus, Egypt,	Bulgaria, Georgia,	
Scientific name	FAO 3-alpha code	Algeria, France, Italy, Monaco, Morocco, Spain	Italy, Greece, Libya, Malta, Tunisia	Herzegovina, Croatia, Italy, Montenegro, Slovenia	Greece, Israel, Lebanon, Syrian Arab Republic, Turkey	Romania, Turkey, Ukraine (Russian Federation)*	DCRF Species Group
Boops boops	BOG	×	×	×	x		Group 2
Diplodus annularis	ANN		×				Group 2
Mullus surmuletus	MUR	×	×		×		Group 2
Octopus vulgaris	occ	×	×	×	×		Group 2
Pagellus erythrinus	PAC	×	×	×	×		Group 2
Sarda sarda	BON					×	Group 2
Scomber japonicus	MAS	×			×		Group 2
Scomber scombrus	MAC	×	×				Group 2
Sepia officinalis	стс	×	×				Group 2
Siganus Iuridus	IGU				x		Group 2
Siganus rivulatus	SRI				x		Group 2
Sphyraena sphyraena	YRS		×				Group 2
Trachurus mediterraneus	HMM	×					Group 2
Trachurus trachurus	ном	×	×		×		Group 2
Subtotal - Group 2	species per subregion	9	9	3	8	1	
Sharks and Rays*		×	×	×	×	×	ALL

\*any species caught during RF activity

### Identify species from the GFCM DCRF priority species list that are present in recreational fisheries

Proposal (Total):

GFCM subregions ▶	Western Mediterranean Sea	Central Mediterranean Sea	Adriatic Sea	Eastern Mediterranean Sea	Black Sea
GSAs ▶	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	12, 13, 14, 15, 16, 19, 20, 21	17, 18	22, 23, 24, 25, 26, 27	28, 29, 30
Countries ▶	Algeria, France, Italy, Monaco, Morocco, Spain	Italy, Greece, Libya, Malta, Tunisia	Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro, Slovenia	Cyprus, Egypt, Greece, Israel, Lebanon, Syrian Arab Republic, Turkey	Bulgaria, Georgia, Romania, Turkey, Ukraine (Russian Federation)*
Subtotal - Group 1 species per subregion	5	5	6	5	4
Subtotal - Group 2 species per subregion	9	9	3	8	1
Sharks and Rays	1	1	1	1	1
Total species per subregion	15	15	10	14	6

### Identify additional species of interest for recreational fisheries based on agreed criteria

#### Criteria:

- Species with a high volume of landings from recreational fisheries (by shore, boat and/or underwater fishing)
- Species with an important social impact for recreational fisheries (e.g. quality of recreational fishing experience, preference of fishers, etc.)
- Species with an important economic impact for RF (e.g. species driving tourism, etc.)
- Species at risk of overexploitation and/or for which a steep decrease in abundance has been observed
- Species of conservation interest (e.g. endangered, vulnerable, etc.)
- Non-indigenous species (NIS)
- Main species of commercial interest for SSF (by volume and by value)

### Identify additional species of interest for recreational fisheries based on agreed criteria

List of species (by GFCM subregion) being compiled by GFCM WGRF experts (to be included in GFCM WGRF report submitted to SAC)

Main species of interest for recreational fisheries Rank in order of Importance:	Criterio	for selec	tion Check	all that appl	y:						
Species name (scientific	Species	mainly o	aught by: Under-	high volume of landings from recreational	recreational fisheries   e.g.	important economic impact for RF (e.g. species driving tourism,	SECURINE IS ADDITIONAL.	Species of communition interest. (= g- endangered, julinerable, etc.)	Non-indigenous species (NIS)	Main species of commercial interest for SSE (by solume and by value)	Comments /
1	AME	LOVEL .	TOTAL CO.								DELEGISE IN PERCONS
2											
2											
3 4											
2 3 4 5											

### WORKPLAN:

Compile available information on the list of species relevant to recreational
fisheries, in line with the identified criteria, in order to provide a preliminary
appraisal of impacts of recreational fisheries on these species and to guide
future work of the GFCM WGRE.

### Other relevant conclusions

### Discussion on SSF-RF interactions

In addition to **improving knowledge** on the impacts of SSF and RF and **strengthening scientific advice** the GFCM WGRF agreed:

- That an important perceived conflict between SSF and RF is from IUU fishing and, as such, suggested that further work be carried out through the GFCM Working Group on IUU fishing (WGIUU) to improve understanding of IUU fishing in coastal fisheries.
- That the engagement of SSF and RF stakeholders in data collection processes was an essential step towards reducing conflicts and promoting synergies between the sectors







### Thank you for your attention

@UN\_FAO\_GFCM

Regional Coordination Group, Mediterranean & Black Sea: Workshop on Recreational Fisheries | 8-9 March 2021

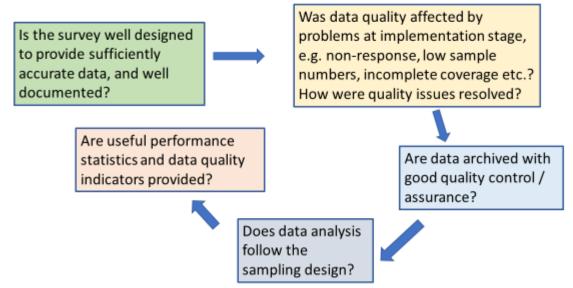


#### **ICES PRESENTATION**





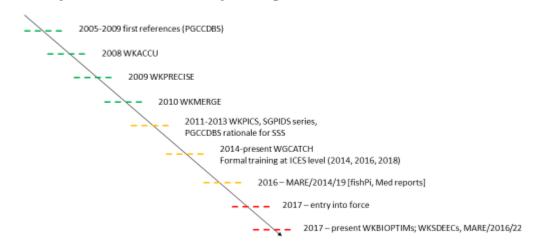
# How good are our survey data? What information do we give the funders (EU) and end users?





## Statistically sound sampling

• Core information from the ICES community dealing with commercial catches







### **WGRFS 2013**

### > Addressed 3 ToR related to:

- · Documentation and quality evaluation of MRF surveys from:
  - o The initial survey design
  - o Implementation phase
  - o Analysis
- WGRFS started with the compilation of national estimates for stock assessment or other purposes



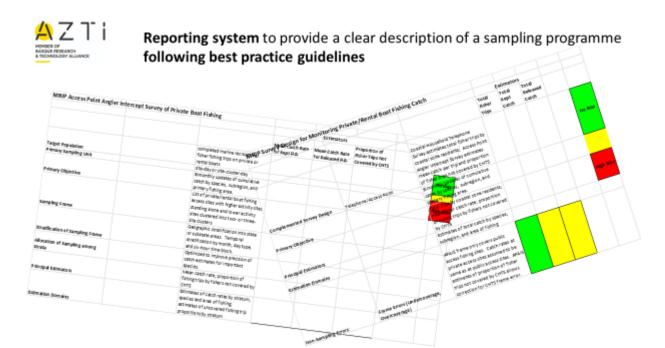
6 Glossary of Recreational Fishing Terms (ToR a)

These definitions have been taken from a number of sources including Wikipedia, national recreational fishing reports, ICES, and FAO, and were adapted for our purposes. The terms are defined in the context of recreational fishing and some terms may have slightly different (but analogous) meanings for commercial fishing and in fisheries science.

Term	Definition	
Access point	Location where angless are intercepted (e.g. for an on-site survey).	
Active fishing	Fishing using line, spear, and hand-gathering.	
Angling	Fishing with handlines, fishing rods and/or poles using baits and/or lures.	
Avidity	The time spent fishing or frequency of fishing activity, measured as number of days on which fishing trips were made.	
Bag limit	Maximum allowable number or total weight of individuals kept.	
Best practice Planning, organization, managerial and/or operational practices proven successful in particular circumstances in one or more recan have both specific and universal applicability.		
Bycatch	Part of catch of a fishing unit taken incidentally in addition to the target species towards which fishing effort is directed.	
Catch	Total number or weight of individuals caught during fishing operations.	
Catch-and-release	The process of capturing a fish, usually by angling, and releasing it alive. Catch and-rebase ranges from logally required mandatory release of protected sizes and species to voluntary catch-and-rebase of fish that could have been relatined.	
Consus	Sampling of every unit in the target population.	
Charter Boat	A boat or vossel operating under charter for a price, time, etc. It is operate by a licensed captain and crow or indivdually and the participants are par- of a pro-formed group of angless. Thus, charters are often closed parties, but some countries include head and tour boats in this definition.	

onal fishery surveys: indicators,

is not possible wer the entire of population the sampling of it is good tice to clearly ribe how of the popula- is and the on for exclud- t.	population in an
mum number samples per um is not	To over-stratify (few or no sam- ples in each strata) the sam- pling schemes.



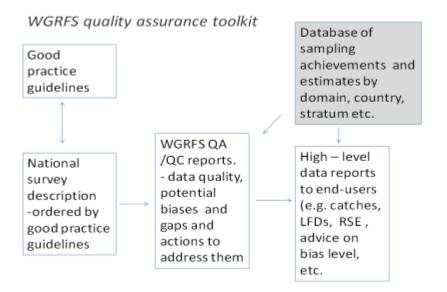
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### WGRFS 2013 – proposed a "toolkit"

- Reporting system to provide different end users with the type of information required
- The end users and their requirements could include:
- 1. National laboratories (for documenting and monitoring national schemes).
- Regional Coordination Groups (overviews of sampling schemes extant within the region; identification of important gaps in data; developing recommendations for optimizing sampling across countries).
- European Commission (evaluation if Member States are meeting DCF / DC-MAP requirements for delivery of data using statistically sound methods).
- 4. Stock assessment expert groups (data quality in terms of precision and bias of estimates being used for assessments).
- WGRFS itself (monitoring the extent and effectiveness of recreational fishery surveys; basis for ongoing development of methods; responding to specific requests).



### WGRFS 2013 - proposed quality assurance toolkit





### WGRFS 2013: Condensed set of guiding questions

QUESTION		Answer	Comments (including Magaitude and Direction of Bias)
dation	Are all sectors contribution to the total catch, harvest or release well-known and documented?	Yes / No / Unknown	PLANT
Target population	In these Elegal, fourist fishery, which is not accounted for?	Yes / No / Usknown	
Tag	Are these elements of the target population that are not accessible?	Yes / No / Unknown	
	Is the PSU identified and documented?	Yes / No / Unknown	
Target frame	Does the sampling frame fully cover the target population?	Yes / No / Unknown	
Tag.	Are there elements of the target population that are excluded from the frame (e.g. non-	Yes/No/	

QUESTION		Answer	Comments (including Magnitude and Direction of Bias)
	Has the survey been designed to maximize	Yes/No/	
	precision?	Unknown	
	Are there protocols in place and have they	Yes/No/	
	been followed for subsamples (selection of	Unknown	
Selection	individuals, times, boats, biological samples)?		
	Are the right sites, times, respondents,	Yes/No/	
	biological data sampled?	Unknown	
	Is there a language barrier (tourist fishery)?	Yes/No/	

QUESTION		Answer	Comments (including Magnitude and Direction of Bias)
	Does the estimation procedure follow the survey design?	Yes / No / Unknown	
General	Has imputation been used to account for missing observations and, if so, is the procedure documented?	Yes / No / Unknown	
	Has the precision of estimates been calculated and, if yes, where are the documented?	Yes / No / Unknown	
	Has there been weighting to correct for nonresponses/avidity bias	Yes / No / Unknown	
	In panel surveys, have those seleted changed their fishing pattern or activity?	Yes / No / Unknown	
	Is the bias caused by drop-outs and drop-ins in a panel corrected for?	Yes/No/ Unknown	
WGRFS	ASSESSMENT OF SURVEY		

quality of the estimates produced.



## **WGRFS National surveys evaluation**

- Since 2014 WGRFS addresses a specific ToR related to assessing different National surveys (off-site & on-site)
- > Each year 3 different surveys are evaluated by the group
- The aim of this evaluation is to provide statements of quality of MRF data and identify potential improvements to survey design.



#### 3.3 Spain (Basque country)

Spain (Basque country) in the Basque Country three different off-site survey methods were compared to estimate recreational fisheries earth and effort. The three different sampling liamss were the list of fishing licenses (for shore fishing), the list of spearfishing licenses (for spearfishing and the list of registered recreational vessels the best fishing). This involved a postal, e-mail and telephone survey to target shore and bost fishing. Spearfishers rever contracted using e-mail only. The off-site components of this survey were evaluated using the corrected questions to detect possible magnitude and direction of bias (Annex 8).

then of bias (Annex 4). Well-like coverage of the sampling hame for the goods were years complete, as the address is a computatory field when buying a fishing license. However, this was not the case for e-mail and phase surveys, which covered less than 20°s of the total survice license helders, and 30°s of spectralishing license helders. Accordingly the target population was not adequately covered in the e-mail and phone energy. Either without a license were not covered by the scarpling frame. Response exists for postal and a e-mail surveys were lose with a high potential due non-exposure bias. The postal mail surveys were lose with a shigh potential due non-exposure bias. The postal mail survey revealed a risk of avidity bias in the estimates with none experienced angless responsing to the survey. Well-Streemments conducting access point intercept surveys to verify the large numbers of annexists they before using three data for assessment purposes. Release safes should be estimated in future surveys.



### WGRFS QAT work-in-progress

- QAT has been in existence since 2013 and has been reviewed since 2018
  - Update some of the questions and to reflect onsite and offsite surveys
  - Consider how to ember within the Transparency Assurance Framework (TAF) in ICES



## **WGRFS QAT work-in-progress**

### WGRFS Intersessional group established

- > Addressed the subjectivity of some of the questions
- > Provide a more logical flow of the questions
- > Create different assessment criteria fort onsite and offsite surveys
- ➤ Minimize different interpretations of the questions
- ➤ Include more quantitative measures

### RCG NA&NSEA ISSG MRF PRESENTATION





# INTERSESSIONAL SUBGROUP "MARINE RECREATIONAL FISHERIES"

DÁLIA REIS & ESTANIS MUGERZA

8TO 9TH MARCH 2021

### AGENDA FOR THE ISSG MRF

I. Regional Species List

MS implement statistically robust multispecies sampling schemes that enable catch quantities to be estimated

2. MRF incorporation in the RDBES

To have a common database to be able to work with, where all recreational data is available for RCG purposes

3. Regional sampling plans for shared stocks

approach "5 general steps"





#### Generic regional Sampling programme

collecting data for common purposes (eg. stock assessment, international assessment of impact of fisheries etc)



- No coordination in planning and implementation of data collection across MS Data stored in national databases Data is made available by MS

- No coordination in planning and implementation of data collection across M5 Outputs of the data collection (aggregated data / estimates) are uploaded into common databases Aggregated data is made public available either per M5 or as region

- Workshops to coordinate quality across MS (eg. age reading, maturity, stock ID, sampling protocols)

  Effort to align sampling effort between countries through regional coordination

  Data is worked up according to common manuals ensuring a higher degree of comparability between MS

  Outputs of the data collection (detailed data and/or aggregated data / estimates) are uploaded into common databa

  Aggregated data is made public available either per MS or as region

- Objectives for data collection regionally agreed
  Coordinated data collection (similar selection methods are used; e.g., sampling frame definition, selection methods, recording of refusals, quality assurances procedures, sampling protocols). MS considered strata.

  Detailed data are uploaded into common databases (e.g. RDB) indicating that data can be used on more detailed levels across MS Data rated on a national or regional level with standardized and transparent methods (RDBES).

  Aggregated data is made public available either per MS or as region

  - Joint data collection (multinational delivery using same platform and/or algorithms)

    Effort redistributed to be allocated according to catch/ tripo/ vessel per MS

    Laboratories responsible/ specialized in a specific parameter (age, maturity, stock ID etc...)

    Detailed data are uploaded that common databases (ag. RDB)

    Data raised on a regional level with standardized and transparent methods (RDBES)

    Less control by the MS to also meet needs of end-users at the national level

    Aggregated data is made public available either per MS or as region

    Can be complemented with nationally schemes (e.g., specific fleet segments, small-scale fisheries)

#### Main Goals:

- · Locate MRF in this approach
- Agree on sampling protocols Upload data into the RDB
- Oproduce data into the NUB

  Coordinate data collection (Check)

  Similar salvetion methods used

  Similar and transcerest definition of sampling frames

  Similar recording of non-responses and refusals

  Open communication among MS throughout the

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