Deliverable 1.1



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Streamlining the establishment of regional work plans in the Mediterranean and Black Sea



# **European Maritime and Fisheries Fund (EMFF)**

# WP1 – Compiling Information and identifying gaps

# **Deliverable 1.1 – Maps of existing elements and gaps**

Authors: Cervantes A., Tiganov G.

Core Team: Billet N., Bitetto I., Carbonara P., Carpentieri P., Charilaou C., Čikeš Keč V., Fiorentino F., Guijarro B., Isajlović I., Ivanova P., Koutrakis M., Raykov V., Sartor P., Scarcella G., Vitale S., Ligas A.

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# **1. EXECUTIVE SUMMARY**

This document, Deliverable D1.1 "Maps of existing elements and gaps", is the result of the compilation and analysis of relevant information on the elements that already exist in the Mediterranean and Black Sea to be fed into regional sampling plans. It reports on the main activities under Work Package 1 "Compiling Information and identifying gaps" of the STREAMLINE project.

Work developed under WP1 paid particular attention to the achievements of previous grants (MARE/2014/19 Med&BS, STREAM, FishPi and FishPi<sup>2</sup>, RECOLAPE and SECFISH). In this regard, a comprehensive analysis of the different deliverables of the grants has been implemented with emphasis in the methodological aspects developed under the different actions. Proposals for regional sampling plans for commercial fisheries, including small-scale fisheries, as well as for stomach contents data collection and for the monitoring of incidental by-catch of vulnerable species have been considered.

Moreover, the outcomes of the pilot studies implemented by the different Mediterranean and Black Sea Member states have been analysed as well as the work performed on the issue of regional sampling schemes by different scientific fora such as STECF, GFCM or ICES. Actions recommended by the Regional Coordination Group for the Mediterranean and the Black Sea (hereafter RCG Med&BS) have also been taken into account.

In parallel, ad hoc questionnaires have been submitted to the relevant National Correspondents for Data Collection in order to have a clear picture on the prospects to implement regional sampling plans in the different areas of the Mediterranean and the Black Sea. These questionnaires concerned respectively GSAs 1-7 (Spain and France); 9-10-11 (Italy); 15 (Malta); 17-18 (Italy, Slovenia and Croatia), 22-23-25 (Cyprus and Greece) and GSA 29 (Bulgaria and Romania).

Further to the <u>analysis of the elements above and their discussion with the RCG Med&BS</u>, a number of conclusions have been set, and associated actions have been proposed as follows:

# General

- End users involvement and RCG increasing responsibility have considerably contributed to the process aiming at the establishment of Regional Sampling Plans (RSPs).
- Despite progress achieved there are elements to be refined before RSPs could be implemented

# **Commercial fisheries**

- According to the majority of the Med&BS MSs, there is potential to develop RSPs for commercial fisheries at least at the sub-regional level and for shared stocks, given that the data required for their implementation are already regularly collected for most métiers and species/stocks. In this regard, future regional coordination shall rely upon common data formats and standardized codes.
- Two types of barriers for the implementation of these RSPs are identified: methodological and administrative/political/financial. The RCG Med&BS has a crucial role to play to overcome such barriers.

#### Stomach content

- In spite that most MSs consider as appropriate the protocols developed under the MARE/2014/19 Med&BS and STREAM grants, according to the RCG Med&BS, they are not fully implemented so far, with some exceptions. The RCG meeting held in 2020 established 2021 as target date for the adoption of these protocols in all MSs.
- There is no agreement among MSs on the choice of species and the amount of specimens to analyse, as proposed by the STREAM project, as well as the proposed number of stomachs to be collected.



• The above aspects, as well as the training element, appear as limiting factor for the implementation of RSPs on stomach content analysis in the short term. Training sessions regarding the harmonization of methods and optimization of the existing protocols, discussions on the outcomes and methodology of the achieved pilot projects, as well as the development of guidelines for prey taxonomic identification are proposed by the concerned MSs.

### Incidental by catch

- The analysis of the outcomes of the pilot projects reveals that a notable progress has been achieved in the monitoring of the relevant métiers as agreed by the RCG (otter bottom trawl, long lines and set nets for the Mediterranean; beam trawl Rapana fishery and turbot gillnets for the Black Sea).
- Almost all Mediterranean and Black Sea pilot studies referred to the FAO-GFCM methodology "Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection".
- In parallel, the métiers proposed in the framework of the STREAM project (bottom trawlers in the Western Mediterranean and in the Adriatic and beam trawl Rapana fishery in the Black Sea) appear as appropriate candidates for start implementing RSPs, although the suggested number of fishing days to be covered are considered excessive by most MSs. It seems necessary establishing a balance between minimum and optimal requirements in terms of trips or fishing days.
- As for other data collection activities, collecting the relevant data for the monitoring of incidental catches of vulnerable and/or non-target species requires the presence of observers on board. Observers are considered the most reliable and useful means of collecting such data. However, this is not always an easy task, due to mistrust of the ship owners or for space limitations, and for security/safety reasons.
- It seems therefore that other alternative approaches (e.g. self-sampling, interview etc.) should be used. Self-sampling is based on fishers completing logbooks while at sea. This methodology could involve the fishermen in the monitoring activities and in the identification of species and handling (whenever possible) before release. Interviews also can be of great use in gathering quantitative information if the correct methodology is used. Combine different methodologies seems the best approach to achieve a high-enough percentage of coverage.

#### **Recreational fisheries**

- For the whole Mediterranean and Black Sea Regions, data on recreational fisheries are sparse and difficult to obtain in a reliable way, as the license and information systems are not homogeneous. Several pilot studies have been implemented in most of the MSs with different approaches, intensity, coverage and reliability of results. Despite the progress achieved in previous grants, it is commonly assumed that further work is needed at national and regional level.
- In general, the estimation of the "population" of recreational fishers is considered important, through national wide probabilistic surveys (e.g., telephone surveys) and also the on-site validation of catches and biological parameters, since self-reporting has a lot of problems regarding misidentification of species or estimating lengths or weights.
- The establishment of a list of priority species based on regional specificities is a priority. In this regard, work developed in the framework of GFCM and RCG Med&BS should form the basis for establishing such a list.



Based on the above conclusions and with the aim to address the identified barriers and needs for the implementation of Regional Sampling Plans in the Mediterranean, a number of actions are proposed as follows:

# Commercial fisheries:

- Organisation of online Workshops on optimisation of sampling effort
- Exploring the possibility to hold online workshops on growth and maturity
- Organisation of a decision-making meeting concerning agreements for RSP
- Definition of sampling units:
  - Resume the work of the PGMed
  - Consultation at sub-regional level

# Stomach contents

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- Follow up of the implementation of the STREAM protocols by RCG (Meeting 2021)
- Discussion on the adequacy of the number of stomachs to be analysed as proposed by STREAM
- Discussion on the choice of species for study in the Mediterranean and Black Sea
- Organisation of online Workshop on prey identification

# Incidental catches/By catch

- Organisation of a training workshop on PETS identification covering all categories of PETS (marine mammals, sea birds, sharks and rays, reptiles).
- Discussion on the minimum and optimal levels of coverage for observers
- Exploring alternative approaches involving fishermen

# **Recreational Fisheries**

- MS to ensure that their national methodology is in line with methodologies prescribed in the GFCM handbook on recreational fisheries starting from 2022
- RCG to plan further work to review list of species and discuss methodologies and type of data to be collected

# **2. INTRODUCTION**

Regional Coordination Groups (RCGs) were established under the current EU Regulation for the collection, management and use of data in the fisheries sector (Data Collection Framework Regulation-DCF)<sup>1</sup> to facilitate cooperation on data collection among Member States (MSs) in the same marine region or on specific fisheries. One of the primary purposes of the RCGs is to prepare regional work plans, which should include sampling designs/plans, procedures, methods, quality assurance and quality control for collecting and processing data, and conditions for the delivery of data.

To support the process for the establishment of RCGs and to provide support to their work, DG MARE launched calls for proposals in the years 2014 and 2016. In the case of the Mediterranean and Black Sea, the selected grants (MARE/2014/19 Med&BS project and STREAM) tackled the very relevant issue of exploring the scope for establishing regional cooperation in data collection activities.

In parallel with the work developed under these grants, several MSs implemented pilot studies under the umbrella of the EU-MAP.

MSs had the opportunity to carry out 4 pilot studies in total:

- Pilot Study 1: Relative share of catches of recreational fisheries compared to commercial fisheries
- Pilot Study 2: Level of fishing and impact of fisheries on biological resources and marine ecosystem

<sup>&</sup>lt;sup>1</sup> REGULATION (EU) 2017/1004



- Pilot Study 3: Data on employment by education level and nationality
- Pilot Study 4: Environmental data on aquaculture

At this stage, despite some common parts of national work plans have been elaborated and currently exist, discussions so far in the RCG Med&BS did not go sufficiently beyond the national perspectives to allow achieving concrete, coordinated regional approaches. As a consequence, the RCG Med&BS has not come forward to date with proposals for regional work plans in the Mediterranean and Black Sea for approval by the Commission.

The general objective of STREAMLINE is to draft Regional Work Plans (RWPs) for the Mediterranean and Black Sea related to specific topics through a co-creative work process with the RCG Med&BS and Member States.

As a first step towards the objectives of STREAMLINE, the main objective of Work Package 1 and thus of the present deliverable is to identify which barriers have prevented the development of regional work plans, including existing information gaps.

# **3. METHODOLOGICAL APPROACH**

Achieving the above goals requires the screening of the readiness of the basic requisites that are related to the different recommendations and suggestions from the previous grants, from the pilot projects and from the outcomes of the discussions in relevant scientific fora and end users, such as the Scientific, Technical and Economic Committee for Fisheries (STECF), the General Fisheries Commission for the Mediterranean (GFCM) or the International Council for the Exploration of the Sea (ICES). In addition, the consultation with the concerned National Correspondents for data collection is an essential element to take stock of the real situation at sub-regional level.

To this end, the following steps have been undertaken:

- A comprehensive analysis of the deliverables and outcomes of the previous grants has been implemented with particular attention to the methodological aspects developed under the different actions. These concerned regional sampling plans for commercial fisheries, including small scale, as well as for stomach contents data collection, for the monitoring of incidental catches of vulnerable species and for recreational fisheries.
- In consultation with DG MARE, the outcomes of the pilot studies implemented in the different Mediterranean and Black Sea MSs were analysed.
- Relevant documentation of scientific nature pertaining to STECF, GFCM, ICES and reports of the RCG for the Mediterranean and the Black Sea has been scrutinised and the elements related to the establishment of regional sampling schemes have been retained.
- A questionnaire has been addressed to relevant stakeholders and scientists involved in the Fisheries Data Collection to help establishing a "map" of what exists, what are the best elements and approaches already developed, which barriers have been identified that could prevent the development of regional work plans and what additional information is still necessary to be able to develop regional sampling plans.

# 4. RESULTS

# PREVIOUS GRANTS

# MARE/2014/19 Med&BS project

The project "<u>Strengthening regional cooperation in the area of fisheries data collection in the</u> <u>Mediterranean and Black Sea, MARE2014 19Med&BS</u>" was aimed at designing a proposal for a regional Multiannual Regional Work programme (MRWP) in the Mediterranean and Black Sea.



Under this grant, an ad-hoc methodology to adjust the sampling effort through an analysis of tradeoffs between sample size and precision levels (e.g. CV) was developed and tested on some case studies (*Merluccius merluccius* and *Mullus barbatus* in the GSA7, *Solea solea* and *Merluccius merluccius* in GSA17, *Sprattus sprattus* in GSA29). The tool developed under the R statistical language proposed a framework which was based on the sampling procedures used by EU MSs.

This grant pointed out that any future regional coordination shall rely upon common data formats and standardized codes. Through this project, critical steps have been taken and a SDEF (Standard Data-Exchange Format) compatible format was tested. It was shown that a suitable solution for alleviating the burden of reporting data in different formats and codes could be the automatic remapping of data from the regional standardized way of reporting to other reporting forms.

By means of an exhaustive review and consultation with stakeholders, selected case studies were identified to implement regional sampling plans:

- bottom trawl fishery for demersal species (OTB\_DES) in the Mediterranean (GSAs 17 and 18) and the gillnet fishery for turbot in the Black Sea (GSA 29) for monitoring by-catch of protected, endangered and threatened species (PET species);
  - European hake (*M. merluccius*) in north-western Mediterranean (GSAs 6, 7 and GSA9) and turbot (*Scophthalmus maximus*) in the Black Sea (GSA 29) for sampling stomach contents.

Taking into account the requirements of the Marine Strategy Directive Framework and the need of implementing an Ecosystem Approach to Fishery Management, key objective of the Common Fishery Policy (CFP), additional data collection activities were identified to better evaluate the impact of fisheries on the ecosystem. Incidental catch of PET species shall be recorded according to standard data collection procedures by experienced on-board fishery observers coupled with log-book data collection. A handbook with species identification guidelines was developed together with data sheets and log-books to facilitate the implementation of the sampling programs.

As concerns stomach content collection and analysis, it was proposed to use two sources of data: scientific bottom trawl surveys, and commercial fisheries. Guidelines on sampling methodologies, identification of the prey items and treatment of the data collected were developed under the grant. Finally, quality check functions were developed in cooperation with the FishPi grant.

# STREAM

The STREAM (STrengthening REgional cooperation in the Area of fisheries biological data collection in the Mediterranean and Black Sea) project aimed at improving the international cooperation and regional collaboration to facilitate the data availability to end-users. STREAM proposed a framework to "optimise" the sampling intensity for biological samplings, allocating sampling intensity and data collection in a way that accuracy can be reliably assessed at regional level, developing indicators of data accuracy and improving standardization, reference and code lists for all selected variables. In addition, in order to cope with the provisions of the CFP, STREAM designed a sampling program for the collection of data on the by catch of PET species, and on stomach content of fish.

For data on <u>commercial fisheries</u>, a list of stocks/fisheries/métiers across the Med and BS regions, presenting a wide scope for regional sampling was identified and, on that basis the grant, prepared proposals for establishing RSPs in different GSAs and métiers. Optimal sampling sizes and accuracy levels for the relevant species/GSAs were estimated according to different methodological approaches.

Selected fisheries were:

- Sardina pilchardus/Engraulis encrasicholus in GSAs 1,5,6 and 7
- Aristeus antennatus/Aristaeomorpha foliacea in GSAs 9, 10 and 11
- Sardina pilchardus/Engraulis encrasicholus in GSAs 17, 18
- Merluccius merluccius, Mullus barbatus and Aristaeomorpha foliacea in GSAs 22,23 and 25
- Mullus barbatus in GSA 29



For data on <u>impact of fisheries on the ecosystem</u>, a detailed proposal for sampling was designed including identification of length classes and number of stomachs to be collected/analysed per length class/quarter/GSA for commercial fisheries and for length class/GSA for surveys at sea. For the Mediterranean basin, *M. merluccius* and *Lophius* spp. were selected while for the Black Sea area the selected species were *S. maximus, Trachurus mediterraneus poncticus* and *S. sprattus*.

Moreover sampling programmes for <u>by-catch of vulnerable species</u> were designed and relevant case studies were identified. Combining information from specific logbooks to be filled by fishermen together with information from observers on board was proposed as the appropriate methodological approach.

For <u>recreational fisheries</u> STREAM explored the current knowledge and provided guidelines for sampling, processing, analysing and managing catch, biological and spatial-temporal data in SSF and RF.

The table below summarises the different case studies addressed in the two grants (MARE/2014/19 Med&BS and STREAMLINE).

	MARE/2014-19/Med & BS			STREAM		
	Commercial	Stomach	PETs	Commercial	Stomach	PETs
	Fisheries	contents	incidental	Fisheries	contents	incidental
	(Sampling		catches			catches
	optimisation)		(métiers)			
Western	M. merluccius	M. merluccius		S. pilchardus	M. merluccius	OTB_DES
Mediterra	and M.	GSAs 6, 7		and E.	and Lophius	France and
nean	barbatus			encrasicholus	spp.	Spain
	GSA 7			GSAs 1,5,6,7		GSA 7
West-		M. merluccius		A. antennatus	M. merluccius	
Central		GSA 9		and A. foliacea	and Lophius	
Mediterra				GSAs 9,10,11	spp.	
nean						
Adriatic	S. solea and		OTB_DES	S. pilchardus	M. merluccius	OTB_DES
Sea	M. merluccius			and E.	and Lophius	Italy,
	GSA 17			encrasicholus	spp.	Croatia
				GSAs 17, 18		and
						Slovenia
						GSAs 17,18
East				M. merluccius,	M. merluccius	
Mediterra				M. barbatus	and Lophius	
nean				and A. foliacea	spp.	
				GSAs 22,23,		
				25		
Black Sea	S. sprattus	S. maximus	GNS_DEF	M. barbatus	S. maximus, T.	Beam
	GSA 29	GSA 29		GSA 29	mediterraneus	trawl
					and S.	targeting
					sprattus	R. venosa
					GSA 29	

# FISHPI AND FISHPI<sup>2</sup>

The <u>FishPi</u> project, funded under the Call MARE/2014/19, has trialled the way sampling designs would be developed in a regional setting. The project found that the main issues in the operation of national



sampling designs is the incomplete sampling coverage of regional populations, and that the allocation of sampling effort unilaterally at national level does not represent the best use of the available resources.

Small scale and recreational fisheries, by-catch and stomach content sampling programmes were not established at that time in regional sampling schemes, and data collection was not routinely carried out by MS to the same extent as the existing commercial fisheries sampling. Through end-user consultations and case studies, FishPi showed that these data have particular requirements. There are end-users usually distinct from the main end users of commercial fisheries data to be considered. As a consequence, data needs and the potential for regional cooperation shall be carefully explored with end-users as a prerequisite to the design stage of any regional scheme.

A major remit of the project was to develop guidelines to evaluate the quality of data at national and regional levels using shared tools. To that end, an R library has been developed and made available on a public access website (<u>https://github.com/ldbk/fishPifct</u>).

A review of the historical operation of the former Regional Coordination Meetings (RCM) has highlighted improvements in regional coordination between MSs. The establishment of the fishery activity matrix and the regional database are considered to be the main elements that had led to a common understanding of regional fisheries and resulted in harmonised codes for métiers, species, harbours and areas.

Regional sampling designs have the potential to improve the statistical validity, data quality and costeffectiveness of data collection and are directly related to the end-user needs. This applies equally to large scale commercial, small scale, and recreational fisheries, by-catch sampling and ecosystem based data collection. Therefore steps should be taken to develop and implement regional sampling designs, taking into account that the primary need is to identify the fisheries most suitable for such regional designs.

Specific regional sampling groups should be established for these key fisheries to oversee the development of regional sampling schemes. These groups should be inclusive; with data collectors, lead scientists in the countries involved, and experts in sampling, all in attendance. They should work in consultation with the main end-users. These groups should operate along the lines of ICES expert groups and under the umbrella of the Regional Coordination Groups (RCGs).

A mechanism needs to be found to respect the autonomy of action of MSs and scientific institutions, in the collecting of data for national use, and reconcile this with requirements to collect data for regional data needs, in accordance with sampling protocols and data quality criteria set at the regional level.

The RCG needs to be empowered with suitable autonomy of action and funding mechanisms to be able to facilitate the appropriate use of expertise, and staff time, needed for the development and implementation of regional sampling plans.

The FishPi<sup>2</sup> project has built on the work achieved in the FishPi project, further strengthening regional cooperation, and has provided some clear guidance on the implementation phase of regional sampling. Work packages (WP) have specifically addressed the operation of putative Regional Co-ordination Groups (RCGs) (WP1); sets out scoping of regional fisheries (WP2); and proposed regional sampling plans for commercial fisheries (WP3). Other work packages have addressed stomach and incidental by-catch sampling (WP4); small scale and recreational fisheries sampling (WP5); and national and regional data quality (WP6). The project outcomes have been disseminated to the North Sea and Eastern Arctic, North Atlantic, and Baltic RCGs in 2018 (WP7). The feedback from these interactions led to a dissemination workshop with National Correspondents and DG MARE representatives in February 2019 (WP8). The project team established close links with other successful consortia and the STREAM project in particular, thus building both within region expertise and facilitating pan-regional cooperation.



# RECOLAPE<sup>2</sup>

The overall objective of the <u>RECOLAPE</u> project was to strengthen the regional cooperation in the area of biological data collection for highly migratory species in the current context where regional cooperation is evolving from a single annual meeting (RCM – Regional coordination meeting) to a continuous process that has greater responsibilities (RCG – Regional coordination group). The project has been involved in several developments:

- The design of Regional Sampling Plans (RSPs) for large pelagic stocks,
- Creation of tools and protocols for collecting new data around FADs (Fish Aggregating Devices),
- Testing the alternative on-board data collection methods and
- The design of an appropriate regional framework to assess the data quality.

WP1 made a proposal for the future organisation of the Large Pelagic RCG (RCG-LP). This proposal includes different meetings/subgroups, which are organized in three stages.

• The first stage aimed at identifying data gaps and data needs, based on the research priorities for data collection identified by the end-users (stock assessment groups within the tuna RFMOs and to improve the coordination between data collection scientists and stock assessment scientists.

• The second stage was the design of Regional Sampling Plans (RSP) both for the target and by-catch species, by coordinating both dockside and on-board sampling for the different stocks. Ideally, this coordination should be achieved by methodological groups dealing with specific fisheries.

• Finally, the third stage evaluated the results of the two preceding stages, and made the final decisions of greater importance and approves the RSPs.

The WP2 explored all the elements needed for the design of a European Regional Work Plan that may replace the relevant parts of the MS National Work Plans. This WP included two case studies: one for the Mediterranean swordfish and another for the tropical tunas in the Atlantic Ocean. In both cases, data needs and priorities were defined, current port sampling protocols were reviewed, and specific variations to current sampling design were recommended to increase the sampling efficiency.

For tropical tunas, eight priority datasets were defined necessary to conduct a robust stock assessment. These were discards (dead and alive), catch-at-size estimates, support vessel activity data (location and number of days at sea), monthly number of FADs deployed by statistical rectangle (1 degree x 1 degree), maturity, ages and local market data. Moreover, two changes are recommended: modify the sampling stratification and reduce the number of individuals to measure per sample.

For the Mediterranean swordfish, nine priority datasets were selected: discards (dead and alive), catch and fishing effort data, size frequency, catch-at-size estimates, maturity, fecundity and ages1. Data available on the size distribution of the landings of four national longline fisheries (Cyprus, Greece, Malta and Italy), were analysed to obtain estimates of optimal sampling rates.

WP3 included two independent pilot studies. WP3.1 proposed best standards for data collection and data transmission around fish aggregating devices (FADs), which are presented as valid to fulfil minimum requirements in all tuna Regional Fisheries Management Organizations (RFMO). Despite the increasing importance of this fishery, little information is available on FAD use which is crucial for the understanding, monitoring and management of FADs use and the impacts on pelagic ecosystems.

The second pilot study, WP3.2, compared the data collected using Electronic Monitoring Systems (EMS) to the data collected by observers and self-reporting programs, to determine if EMS can be used to reliably collect unbiased data on-board longline fleet. This pilot study, which was conducted in the longline fleet targeting large pelagic species around La Reunion Island (Indian Ocean), demonstrated that using the EMS is a viable complement or alternative to collecting the data using human observers, even if there are still some weaknesses.

<sup>&</sup>lt;sup>2</sup> <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020SC0229&qid=1604501634193</u> <u>SWD(2020)229</u>



WP4 developed a data collection strategy for some variables not collected under the Data Collection Framework (DCF). These variables should be provided by the fishing industry and buoy providers and will be used, in combination with traditional DCF data, for Catch per unit effort (CPUE) standardisation, as well as in the estimation of alternative abundance indices in tropical tuna fisheries. As such, the objectives of the WP4 were: i) to develop a data collection strategy on FADs; ii) to provide indicators of the total number of operational buoys at sea; iii) to improve the CPUE standardization procedure; iv) to define dedicated algorithms to improve estimates of biomass signal from echo-sounders; v) to develop alternative abundance indices in tuna fisheries, which requires the efforts from all the stakeholders. On the other hand, the WP4 was devoted to developing and test methods for the estimation of reliable estimates of tuna presence and abundance underneath the FADs.

WP5 developed an R package, named *dqassess*, which could improve the procedures assessing the quality of biological data on large pelagic stocks, at the national and regional levels. The introduction of the R package *dqassess* has to be seen as the first step in a larger dynamic process. In addition, Mediterranean swordfish age-reading coordination exercise was conducted under WP5, which could be understood as an example of cooperation under the DCF between the institutes from several MS and which could be extended to the rest of the LP species. This cooperation has resulted in common and agreed procedures (age scheme, age criteria) and methods (preparation of the spines) used for swordfish age reading. Moreover, it is recommended that the coordination on the swordfish ageing should continue, organising new exchange exercise and workshop after three years to assess any improvements that might be ascribed to the agreed-on procedures and common ageing protocol.

Finally, WP6 focused on a consultation process about the results obtained in the present project among MS involved in LP fisheries. The participation rate exceeded 50% including some of the most relevant countries with large pelagic captures. There is a broad consensus among MS on:

• the general proposal to structure the RCG-LP in 3 stages,

• the recommendations done for the development of a RSP for tropical tunas and Mediterranean swordfish, and

• the procedures to assess the biological data quality.

# SECFISH<sup>3</sup>

The <u>SECFISH</u> project was funded under the Call for Proposals MARE/2016/22: Strengthening regional cooperation in the area of fisheries data collection to address a set of TORs regarding social and economic data collection issues.

Specifically, the project addressed the following overall and specific objectives:

- Improve completeness and reliability of the social and economic data collection;
- Improve the availability of data to scientists to provide advice to end-users;
- Address aspects raised by the STECF and other relevant scientific committees to improve the social and economic data collection;
- Improve the regional coordination between MS of different regions regarding sampling design and end-user needs;
- Develop new approaches to disaggregation of economic data harmonizing with the biological data and use both in bio-economic models;
- Address coordination of methodologies for socio-economic data collection going beyond the coordination through PGECON.

The consortium covered the main sea basins of the European Union (Baltic Sea, North Sea, Western Waters, Celtic Sea and Mediterranean Sea) and a wide variety of fleet segments, aquaculture production systems and sectors of the fish processing industry.

<sup>&</sup>lt;sup>3</sup> <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020SC0229&qid=1604501634193</u> SWD(2020)229



The project was organised in 7 Work packages, involving institutes regularly participating in PGECON work, and provided an overview on what has been achieved in 2016-17 (WP 1).

In WP2, the consortium addressed the methodologies for sampling designs and estimation methods by providing a handbook including the relevant information.

The disaggregation of economic variables is one of the main problems we face analysing economic effects of management decisions. In WP3, the consortium developed a methodology (R code) for a standardised routine to disaggregate the economic data.

In more and more countries tradable fishing rights are introduced. It is, therefore, important to estimate the intangible assets like fishing rights in EU fisheries. This was addressed in WP4.

WP5 elaborated on the possibilities to collect data on raw material in the fish processing industry. The STECF has repeatedly argued that without information on the origin of raw material it is impossible to draw a link between the processing sector and the fishing fleets.

As it is important to improve the collection on social variables (e.g. included in the new DCF), WP6 addressed possibilities for improvements of the data collection.

WP7 elaborated on the possibilities for the economic data collection on recreational fisheries. The main reason is that there are some regions where recreational fisheries are very important for the regional economy.

# PILOT PROJECTS

According to the EU-MAP implementing decision<sup>4</sup>, MSs shall provide catch estimates from existing recreational fishery surveys allowing the assessment of the share of catches from recreational fisheries in relation to commercial catches for all species in a marine region. Moreover, the relevant delegated decision<sup>5</sup> establishes data for estimating the level of fishing and the impact of fishing activities on marine biological resources and on marine ecosystems, such as effects on non-commercial species, predator-prey relationships and natural mortality of fish species in each marine region. Such data shall be first assessed within pilot studies. Based on the outcomes of these pilot studies, MSs shall determine future data collection specific for each marine region, coordinated at marine region level and based on end-user needs.

To cope with the above provisions, most MSs have implemented in the last years, pilot studies on recreational fisheries, environmental impact of fisheries and stomach content analysis with a different degree of complexity. Other pilot studies on employment data and environmental data on aquaculture were also implemented.

The table below shows the different pilot studies conducted by the Mediterranean and Black Sea MSs<sup>6</sup>.

MS	Pilot study 1: Share of catches of recreational fisheries	Pilot study 2: Level of fishing and impact on resources/ecosystems	Pilot study 3: Employment data by education/nationality	Pilot study 4: Environmental data on aquaculture
Bulgaria		Х		
Croatia	Х	Х	Х	
Cyprus	х	Х	Х	

<sup>4</sup> COMMISSION IMPLEMENTING DECISION (EU) 2019/909

<sup>5</sup> COMMISSION DELEGATED DECISION (EU) 2019/910

<sup>6</sup> <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020SC0229&qid=1604501634193</u> SWD(2020)229



France	х	Х		Х
Greece	Х	Х	х	х
Italy	Х.	Х	Х	Х
Malta	Х	Х	Х	Х
Romania		Х	Х	Х
Slovenia	Х	Х.	Х	Х
Spain	х	Х	Х	

The outcomes of these pilot studies were presented and, when possible, discussed in the framework of the relevant RCG activities.

Below, a summary of the main elements pertaining to this process is presented, with special consideration to the prospects for designing Regional Sampling Plans (RSPs).

#### Recreational fisheries

For data collection purposes, the current EU-MAP only considers eel, elasmobranchs and highly migratory species. Ongoing discussions to design the new EU-MAP recommend that this list be extended in order to take into account regional specificities. In this regard, 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.

The implementation of RSPs on recreational fisheries appears difficult in the short term due notably to the limited and fragmented availability of information. In this regard, progress achieved in previous grants remains limited to methodological approaches (notably effort mapping and guidelines for data collection) and the implementation of pilot studies was deemed as more appropriate and precautionary, as a first step towards the design and further implementation of RSP.

In order to cope with the forthcoming requirements, two workshops on recreational fisheries were organized under the umbrella of the RCG Med& BS. The first one, which took place in 2019, discussed five case studies which were in progress in Italy, Malta, Greece, Spain and Cyprus. Although this workshop provided interesting elements concerning the data to be collected and the quality framework, it was deemed necessary to finalize them, assess their outcomes and use them to generate plans for regular data collection.

The second one, held virtually in early 2021, was attended by all relevant MSs and representatives from end users (GFCM and chairs of ICES WGRFS). This meeting discussed the findings of the different pilot projects ongoing in these MSs and provided a number of recommendations to be endorsed by the RCG plenary, to be held in September 2021, when drafting the future work plans. These recommendations concerned the harmonization of data collection methodologies in line with the FAO-GFCM Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea (draft)<sup>7</sup> and the outcomes of the STREAM project, as well as the implementation of biological sampling in a number of additional priority species in the Mediterranean (*Dicentrarchus labrax, Dentex dentex* and *Epinephelus* spp.) and the Black Sea (*Pomatomus saltatrix, Trachurus mediterraneus ponticus,* Gobidae and Mugilidae). A set of criteria for establishing the list of priority species was proposed by GFCM.

The state of play of the pilot studies differs from one MS to another and the available results are preliminary in most MSs, while catches are potentially subject to overestimation/underestimation. However, a certain degree of similarity in the applied methodologies has been observed. Despite this,

<sup>&</sup>lt;sup>7</sup>https://gfcmsitestorage.blob.core.windows.net/website/Publications/GFCM\_WGRF\_2020\_Handbook%20for%2 0RF%20data%20collection\_WEBSITE.pdf



further work is needed to adapt sampling strategies to national peculiarities and to harmonize national schemes to the regional scale.

#### Stomach content

According to RCG recommendations in the 2020 annual meeting, the sampling and analysis protocols provided by MARE/2014/19 Med&BS project and STREAM should represent the basis for designing and implementing the data collection and analysis of stomach contents. RCG recommended that pilot studies on the species proposed by STREAM should be implemented under the Work Plans. Bulgaria is performing already under the National Program for fisheries data collection stomach content analysis for sprat since 2007, turbot since 2014 and, sporadically, horse mackerel. Although no pilot study has been implemented so far under the DCF, Romania performs stomach content analysis of some fish species under the framework of different research activities and projects.

Other MSs such as Greece and Spain are applying it only to MEDITS, while Italy, Cyprus and Malta had the intention to follow it in their 2021 work plan.

To date, a number of studies have been carried out or are close to be completed for which some preliminary results are already available, while in other MS no pilot studies on this topic have been implemented so far:

**Italy** implemented a thorough study in 2018-19, in which more than 3000 stomachs of *M. merluccius* were analysed for identification of their content. Different diet composition in relation to length classes were found: predominance of small crustaceans in the stomach of small hakes and higher presence of bony fish in stomach of specimens larger than 15 cm of total length.

**Greece** has performed three pilot studies on approximately 100 hake stomach contents each year from 2018 to 2020 during the MEDITS survey, with a predominance of *E. encrasicholus* in the diet, followed by *P. longirostris*.

**Bulgaria** has implemented several studies on diet composition of major species in different periods: sprat (80 specimens in 2017, 30 in 2018 and 110 in 2019), horse mackerel (1042 specimens in 2007, 432 in 2013, 620 in 2014 and 241 in 2015), turbot (20 specimens in 2006 and 30 in 2007)and whiting (15 individuals in 2020). Results of the analysis show that the diet composition of sprat has a predominance of copepods, while for turbot the main preys are whiting, crustaceans, sprat and mussels. In the case horse mackerel, seasonal variations are observed with a preference for fishes in autumn and for a mix of zooplankton, benthos and fish in summer. Whiting diet is composed mainly by crustaceans (Mysida and Decapoda) as well as zooplankton and some juveniles of whiting.

**Cyprus** collects regularly stomachs of the two species of red mullet (*M. barbatus* and *M. surmuletus*) for analysis although results are not available yet.

So far, **Croatia** has not performed any pilot study under the EU MAP. However some work on diet composition for pelagic (sardine and chub mackerel) and demersal (hake, red mullet, monkfish, Norway lobster and rose shrimp) species are being implemented under other frameworks.

Likewise **Romania** has not implemented any study on stomach content analysis in the framework of the EU MAP but some experiences on sprat and turbot have taken place in the framework of some Black Sea projects.



**Spain** planned to launch the pilot study in 2020 but it had to be postponed to 2021 so that no results are available so far.

No pilot studies on this issue are being implemented in Malta, France and Slovenia.

#### Incidental catch of Protected, Endangered and Threatened (PET) species

Most MSs have included in their National Plans the implementation of specific pilot studies on incidental catch of PET species, while some others have included their monitoring among the routine activities (i.e. biological sampling of catches) that observers implement yearly on board commercial vessels.

**Italy** performed the monitoring of the by-catch of otter bottom trawl (OTB) fisheries in 2018, while the longlines fisheries were monitored in 2019. All the Italian GSAs (GSAs 9, 10, 11, 16, 17, 18 e 19) were included in the two monitoring programmes. For the trawlers, a total of 4356 fishing days were monitored. Most species in the by-catch were elasmobranches (20 out of 23), with *Squalus blainville* and *Mustelus mustelus*\*representing the bulk of the by-catch. The other three species were the bony fish *Alosa fallax*\*, the sea turtle *Caretta caretta*\*\*, and the cetacean *Tursiops truncatus*\*\*. For longliners (both operating in midwater and surface) ten ports were included in the sampling activities in 5 GSAs (excluding GSAs 10 and 17) and 429 fishing days were monitored. A total of 13 species (1 sea turtle, 7 elasmobranches and 5 teleosts) were observed. The greatest number of incidental catch corresponded to *Pteroplatytrygon violacea* and *Prionace glauca*\* as well as the fish *Mola mola* and the sea turtle *Caretta*\*\*.

**Spain** is carrying out three pilot studies for assessing incidental catches of vulnerable species on a yearly basis: bottom trawlers in GSAs 1,2,5,6 and 7 (2018), set-longliners in GSAs 1 and 2 (2019) and set nets in GSAs 1,5 and 6 (initially planned for 2020, postponed to 2021). The results of the 2018 pilot study, where 429 trips were observed, confirm previous observations in the bottom trawl fishery: in general, the by-catch is composed by some sharks and rays species (notably *Centrophorus granulosus*<sup>\*</sup> and *Leucoraja naevus*). In addition to this, one record of the sea turtle *Caretta caretta*<sup>\*\*</sup> has been registered. The observers did not report any occurrence of marine mammals or seabirds by caught in trawlers. The number of trips sampled in 2019 was very low due to scarcity of set-longliners. In general, the by-catch is composed by few sharks and rays species with a low number of specimens.

**Greece** has planned to record incidental catch of PET on bottom trawlers (2018), on longlines (2019) and on set nets (gillnets) (2020) for the GSAs 20, 22 and 23. A preliminary list of vulnerable species occurring in Greece and potentially impacted by fisheries was established in line with EU-MAP and GFCM provisions. Sampling protocols and data quality assurance framework were based on FAO protocol (2019) as well as on WKPETSAMP report (ICES 2019).The final objective of this pilot monitoring programme was the estimation of the fisheries pressure on the populations of the rare and vulnerable species through the calculation of the by-catch rate for each species and metier following the reporting file included in FAO-GFCM guide for the monitoring of the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries (2019). The highest by-catch rates in Greek seas was recorded for the species *Squalus acanthias*\*, *Mustelus mustelus*\*, *Alosa fallax*\*, *Centrophorus granulosus*\* and *Oxynotus centrina*\*\* in bottom trawlers, and for the species *Epinephelus marginatus*\*, *S. acanthias*\*, *C. granulosus*\*, *M. mustelus*\* and *Gymnura altavela*\*\* in longlines. The data collected during 2020 are being processed.



In **Cyprus**, data on incidental catch were obtained from the two licensed bottom trawlers through observer programmes, interviews and electronic logbooks. The planned trips to be sampled for bycatch were 8, covering all quarters with fishing activity (q1, q2, q4).In 2019, around 185 fishing trips were performed, from which a total of 14 trips were sampled. Observers were able to collect information on total catch from 5 trips (a percentage accounting for 2.5% of trips) from all relevant quarters, while the rest of the trips were sampled only on the retained catch. Interviews were made whenever a trip was sampled, following the GFCM guidelines on incidental catch. Observers recorded 4 elasmobranch species (*Raja polystigma, Scyliorhinus canicula, Squalus blainville* and *Torpedo nobiliana*), none of which are included in DCF Table 1D of the EU MAP concerning the Mediterranean region. Only two fish with Minimum Conservation Reference Sizes (included in Table 1D) were recorded: *Diplodus annularis*, and *Pagellus acarne*. There were no records of seabirds, marine mammals and sea turtles .Based on the interviews, sharks are not common in catches, while rays are occasionally caught (Raja spp.).

**Malta** has been carrying out pilot studies to collect data on incidental catch since the start of the implementation of the Commission Implementing Decision (EU) 2016/1251, i.e. January 2017, as indicated in the national Work Plans 2017-2019. The data collection has been extended into 2021, as per Work Plan 2020-2021. Malta makes use of the observers on-board for the collection of biological data also to collect data on the incidental catch of seabirds, marine mammals, sea turtles and fish.

In **Slovenia** no pilot studies have been conducted. Data on by-catch for PETs species are obtained from the regular on-board samplings: observer sampling programme for the monitoring of commercial fisheries covers also the sampling of incidental catch. Those data about incidental catch are also recorded as notes in the logbooks by all fishermen independently from the length of the vessel or the gear.

**Croatia** monitors by-catch of vulnerable species for all métiers selected by the ranking procedure (more than 90% of total catch, effort and discard). Activity is carried out by independent scientific observers on-board commercial fishing vessels.

In **France**, DACOR project in GSA8 (not a pilot study) has collected data on incidental catch of vulnerable species for different fisheries and registered whether the release was dead or alive plus other categorization of the discards. At-sea sampling for trawlers in GSA7 routinely monitors PETS from 2019 onwards.

In 2017, **Bulgaria** and **Romania** conducted a joint pilot study on the assessment of by-catch in Rapana whelk (*Rapana venosa*) fisheries aimed to estimate the effect of *Rapana venosa* fishery (with beam trawlers) on the juvenile stages of bottom fish species, such as turbot (*Schophthalmus maximus*) and spiny dogfish (*Squalus acanthias*\*). The study covers the Black Sea GSA 29.

In subsequent years Bulgaria and Romania are collecting data for the target species, by-catch, and discards of marine organisms by the main types of activities of their fleets, in particular turbot fishery with gillnets and Rapana fishery with beam trawls.

\*Species listed in Annex III (species whose exploitation is regulated) of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention).

\*\*Species listed in Annex II (endangered or threatened species) of the Barcelona Convention.

#### OTHER FORA



#### GFCM

With the aim of optimizing the GFCM fisheries data collection and transmission, the GFCM adopted in 2015 its "Data Collection Reference Framework (DCRF)<sup>8</sup>". This framework address the general principles and rules to ensure common understanding and harmonized together with some principles and indicators to be considered to ensure appropriate quality standards. In this regard, precision, accuracy, representativeness, completeness, and comparability are components of the quality that should be taken into account by contracting parties when submitting data. A further quality check is undertaken by GFCM Secretariat based on several indicators: timeliness, completeness, conformity, stability, consistency, accuracy, and adequacy.

In this context, the GFCM launched a survey to assess the data quality control process carried out at the national level by CPCs as well as from the application of quality checks to the data transmitted through the DCRF online platform for the reference years 2017 (feasibility phase), 2018 and 2019.

In line with the DCRF requirements, the GFCM organised a Workshop on Fisheries Data Submissions and Implementation of Quality Indicators aiming at analysing potential challenges in the collection and transmission of fisheries data through the DCRF online platform; assist the contracting parties (CPCs) in the selection of fleet segment and species by GSAs in the context of the existing DCRF mechanism; report on the current implementation of quality indicators (timeliness, completeness, conformity, stability and consistency), and review the methodology for the application of data quality indicators, including definition of thresholds.

Activities related to the improved collection of data, the general principles and standards for fisheries data collection on commercial fisheries have been complemented with ad hoc actions to address the particularities of recreational fisheries (RF). In this regard, a <u>Working Group on Recreational Fisheries</u> (<u>WGRF</u>) has been established to coordinate technical, scientific and socio-economic activities relating to RF in order to fill the main data gaps relating to this sector, to produce advice for consideration and validation by the Scientific Advisory Committee (SAC) and the Working Group for the Black Sea (WGBS) and to support the sustainable management of RF within an Ecosystem Approach to Fisheries perspective. The group met in 2021 and in addition to endorsing the *"Handbook for data collection of recreational fisheries in the Mediterranean and the Black Sea*"<sup>9</sup>, it stressed the importance of further strengthening data collection in view of improving advice on the scope and impacts of RF. To this end, it was agreed to assess which, if any, DCRF priority species were present in RF. Furthermore, based on agreed criteria, a list of additional species of main interest for RF was identified (per sub-region). It was agreed that efforts should be made to compile available information on these species, in view of providing a preliminary appraisal of RF impacts and to guide future work of the WGRF. The <u>report of the meeting</u>, including the list of species and the agreed criteria is available on the GFCM website.

With regard to the impact of fishing activities on marine biological resources and marine ecosystems, the GFCM has considerably contributed to improve the methodological aspects of the data collection with documents to monitor discards<sup>10</sup> and incidental catch of vulnerable species<sup>11</sup>. In both documents, proposals for an efficient, standardized data collection and monitoring system through on-board observations, questionnaires at landing sites and self-sampling activities are provided, including

<sup>&</sup>lt;sup>11</sup> FAO. 2019. Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection. FAO Fisheries and Aquaculture Technical Paper No. 640. Rome, FAO.



<sup>&</sup>lt;sup>8</sup>https://gfcm.sharepoint.com/sites/DCRF/SiteAssets/Manual/GFCM-DCRF-manual-2018-v.19.1.pdf

<sup>&</sup>lt;sup>9</sup><u>https://gfcmsitestorage.blob.core.windows.net/website/Publications/GFCM\_WGRF\_2020\_Handbook%20for%2</u> 0RF%20data%20collection\_WEBSITE.pdf

<sup>&</sup>lt;sup>10</sup> FAO. 2019. Monitoring discards in Mediterranean and Black Sea fisheries: Methodology for data collection. FAO Fisheries and Aquaculture Technical Paper No. 639. Rome.

recommendations on the role of observers as well as suggesting levels of minimum and optimal percentages of trips coverage.

In line with the above, GFCM has also issued manuals on good practices for the handling of cetaceans, sea turtles, seabirds, sharks and rays caught incidentally in Mediterranean fisheries<sup>12</sup>

In the framework of GFCM, a number of relevant conservation recommendations and resolutions were adopted in the last years, as follows:

- Recommendation GFCM/42/2018/2 on fisheries management measures for the conservation of sharks and rays in the GFCM area of application, amending Recommendation GFCM/36/2012/3
- Recommendation GFCM/42/2018/4 on a multiannual management plan for sustainable trawl fisheries targeting giant red shrimp and blue and red shrimp in the Ionian Sea (geographical subareas 19, 20)
- Recommendation GFCM/42/2018/5 on a multiannual management plan for bottom trawl fisheries exploiting demersal stocks in the Strait of Sicily (geographical subareas 12 to 16), repealing recommendations GFCM/39/2015/2 and GFCM/40/2016/4
- Recommendation GFCM/42/2018/7 on a regional research programme on blue crab in the Mediterranean Sea
- Recommendation GFCM/42/2018/1 on a multiannual management plan for European eel in the Mediterranean Sea (including the development of a Research programme)
- Resolution GFCM/43/2019/6 on the establishment of a set of measures to protect vulnerable marine ecosystems formed by cnidarian (coral) communities in the Mediterranean Sea
- Recommendation GFCM/43/2019/4 on a management plan for the sustainable exploitation of red coral in the Mediterranean Sea
- Recommendation GFCM/43/2019/1 on a set of management measures for the use of anchored fish aggregating devices in common dolphinfish fisheries in the Mediterranean Sea

# STECF

The Scientific, Technical and Economic Committee for Fisheries (STECF) has played a pivotal role in the process of Revision of the EU-MAP in the last years, with particular attention to the Regional Dimension and the new elements to be included.

In particular, the Experts Working Groups (EWGs) STECF EWG 19-12 "Revision of the EU-MAP and Work Plan template" and STECF EWG 20-16 "Evaluation of DCF Work Plans 2021 and WP/AR templates & guidance" have addressed a number of essential points for the definition and further implementation of Regional Sampling Plans under the forthcoming framework to start in 2022. This work was complemented by STECF EWG 21-09 "Evaluation of Annual Reports for data collection and data transmission failures" that assessed several pilot studies on recreational fisheries and impact on marine ecosystems.

<sup>&</sup>lt;sup>12</sup>http://www.fao.org/gfcm/publications/en/



#### STECF EWG 19-12 "Revision of the EU-MAP and Work Plan template"

The EWG enshrined the role of RCGs in the coordination at marine regional level of target species, data collection methods, and other relevant aspects of the work programmes based on end-users needs. Particular attention was paid to the promotion of sampling plans for ecosystem data as well as for recreational fisheries.

For pilot projects foreseen to be implemented in 2020 and 2021 (stomach contents, by catch of vulnerable species and monitoring of recreational fisheries), STECF noted the risk of not being able to finalise them or not providing the expected results.

With regard to ecosystem data, there are uncertainties on how it could be included in the regional work plans across the various regions and concluded that RCGs should develop a roadmap for a regional Work plan clarifying the responsibilities of each MS. In the particular case of the Mediterranean and Black Sea region, it was recommended to apply the tools already developed under the STREAM project.

Concerning recreational fisheries, the EWG underlined that standard and harmonised monitoring programmes are not regularly implemented in all MS and recalled the need for RSP to allow for differences between MS in the types of methodologies that are appropriate or feasible. For the identification of target species, the EWG suggested to take into account the recommendations of the ICES Working Group on Recreational Fisheries Surveys (WGRFS) and the GFCM working group on recreational fisheries.

Adaptations to the relevant Tables in the Work plan template were suggested to include elements pertaining to potential RSP: species of interest for recreational fisheries (whether they are recommended by RCG, thresholds), thresholds applicable to surveys, stomach sampling plans.

# STECF EWG 20-16 "Evaluation of DCF Work Plans 2021 and WP/AR templates & guidance"

In addition to work in the structure of the Work plans and Annual Report templates for the future EU-MAP, the EWG evaluated two test Regional Work Plans submitted by the RCGs Baltic and North Sea& Eastern Artic. These RWPs included sections on biological data collection (fisheries, surveys) and international/regional coordination. Although the evaluation exercise was considered successful, the group recommended that RCGs have their say in their 2021 meetings before a full assessment can be performed.

During the 2021 meetings (technical meeting in June and decision meeting in September), RCGs will be tasked to develop a full-scale RWP (for 3 years) to be submitted to the Commission to be adopted as a legal act.

Several elements pertaining to these future RWPs remained unclear after this meeting however. For instance, the question on how to deal with the share of responsibilities/tasks/costs, in particular from which data source the figures should be obtained and how MSs are supposed to calculate the EU total landings in order to estimate their share. In this regard, the EWG mentioned as a good practice the "agreed landings per MS" table proposed by the RCG Med&BS.

In the opinion of the EWG, the outcomes of recent EU supported grants such as STREAM and FishPi<sup>2</sup> (in particular guidelines on best practice methodologies for sampling, processing analysing and managing catch and biological data to strengthen regional cooperation), in combination with the results of the pilot studies, should be further considered when drafting future RWPs. For recreational fisheries data collection in the Mediterranean and Black Sea, the EWG recommends the use of the GFCM "Handbook for data collection on recreational fisheries in the Mediterranean and the Black Sea (draft)<sup>13</sup>".



In addition to stressing the role and responsibilities of the RCG in the setting up RWPs, end users' involvement in the identification of the needs for elements to be incorporated in those RWPs is pointed out by the EWG as essential.

In addition to the above reflections and recommendations, the EWG responded to a questionnaire on RWPs. In a nutshell, the group considered that the submission of RWPs is responsibility of the RCG chairs, following a regional consent and a mandate given by the RCG. According to this EWG, the evaluation of these RWPs should precede the WP evaluation so that they can be incorporated into the national WPs, once approved. In contrast to the WP, that can be subject to regular amendments, the EWG considered that the RWP should be a more stable document, although in particular situations (emerging scientific knowledge, new tools, etc.) it might be adjusted accordingly. The group also recommended that, when the regional scope includes third countries, cooperation should be undertaken under the umbrella of the relevant RFMO (e.g. GFCM).

#### STECF EWG 21-09: Evaluation of Annual Reports for data collection and data transmission failures

This EWG evaluated and validated two review reports prepared under ad-hoc contracts concerning pilot studies on recreational fisheries and impact on marine ecosystems, undertaken under the EU-MAP 2017-2019.

The report reviewing pilot studies on marine recreational fisheries (MRF) covered pilot studies carried out in most European MSs with the exception of Bulgaria, Romania, Latvia, Lithuania, and the Netherlands. The report constitutes an integrated view of the work done at European level to improve scientific estimations of catches and fishing effort related to recreational fisheries both in freshwaters and marine waters. Furthermore, it provides individual assessments of the different pilot studies as well as general remarks and provides best-practice examples to improve the data collection.

The main challenge encountered in the different sea regions was the difficulty to work with official data, either by lack of a mandatory license system and/or because the existing one is not suitable to be used as sampling frame for MRF data collection (e.g., not covering all fishing modalities, missing contact information, data protection requirements preventing use of contact data etc.). Accordingly, national population surveys are required, which incur substantial additional costs.

The second review report on the level of fishing and impact of fisheries on biological resources and marine ecosystem refers to the analysis of 32 pilot studies from 17 MSs. The first part of the report includes general comments regarding main achievements, methodologies, difficulties encountered and potential solutions, conclusions and areas that could be improved. In the second part of the study the structure and content of each pilot study was evaluated against a set assessment criteria. The report of EWG 21-09 will be published after the STECF PLEN 21-02 (Summer Plenary).

#### ICES

Substantial work has been carried out within the ICES framework, in particular to improve quality procedures. Important activities include the ICES Planning Group on Commercial Catch, Discards and Biological Sampling (PGCCDBS), workshops initiated by the group and successive groups (ICES WGCATCH, WGBIOP and PGDATA). Regional coordination and cooperation have been further supported by the development of certain tools. The most important ones are the Regional Database (RDB and RDBES), the COST (Common Open Source Tool for raising and estimating properties of statistical estimates) tools and the WebGR (Web services for support of Growth and Reproduction studies). The latter two were funded by the European Commission. The RDBES is an ICES initiative, and ad hoc funding has been provided by European Commission. Under the specific grant agreement with ICES, European Commission funded the RDB Fishframe, which is currently the RDB of the relevant RCGs (Baltic, North Atlantic, North Sea and Eastern Arctic areas).

Working Group on Biological Parameters (WGBIOP)



The main objective of the Working Group on Biological Parameters (WGBIOP) is to review the status, issues, developments, and quality assurance of biological parameters for use in assessments and management that are in line with the requirements of end-users. In this final year of the three-year term, WGBIOP operated under challenging circumstances due to COVID-19 measures. The initial action plan was replaced by a more flexible one, where online plenary and subgroup meetings were spread over the year with inter-sessional work to finalize the proposed deliverables. WGBIOP continued the review of past exchanges and workshops under the remit of the working group. Since 2019, these calibrations on age, maturity, and larvae identification have been carried out using SmartDots, an online platform for sharing images and facilitating the reading of otoliths, staging of gonads, and identification of early life stages. Developments are underway to include an improved calculation of modal age and error matrices in the SmartDots standard report. WGBIOP investigated ways to incorporate error matrices into assessments and studied the effect of this inclusion together with stock assessors. Requests for new exchanges and workshops were reviewed, with a focus on stocks to be benchmarked in the coming years. Issue lists were scrutinized, problems identified, and information provided to stock coordinators via regular channels and through the Stock Identification Database (SID). Despite close cooperation with stock assessors and continued efforts, it has not been possible to further streamline the WGBIOP workflow with the benchmark process. This will be addressed with the Advisory Committee. The need for validation studies was stressed by the repeated low levels of agreement between readers of some stocks and recurring issues and recommendations to WGBIOP. Lack of resources is the main obstacle. As a first step for measures to prioritize validation studies, WGBIOP identified precision, trueness, and feasibility of validation methods (as well as the urgency for the assessment). WGBIOP continued investigations into new life-history parameters for integrated assessment and advice in cooperation with end-users (Working Group on Integrative, Physicalbiological and Ecosystem Modelling-WGIPEM and Regional Coordination Groups-RCGs). This included a standardization and quality assurance action plan for stomach sampling. Efforts have also been taken to streamline data and workflows across databases and groups.

A step has been taken in the standardization of quality assurance procedures at the regional level. Institute-level overviews of methods and quality assurance protocols used for ageing and maturity are now available. Also, a new method for quality grading was developed, tested, and implemented in SmartDots.

# Workshop on Optimization of Biological Sampling at Sample Level (WKBIOPTIM)

The Workshop on Optimization of Biological Sampling at Sample Level (WKBIOPTIM) is aimed at developing and sharing methodologies and tools to simulate and analyse a range of different sampling scenarios with the outputs being useful in discussions of improvements to national and regional sampling plans. Starting from 2017, annually, the group discussed practical aspects of optimization of sampling and work to provide a compilation of methods so that this information is well documented and organized for end users.

The third Workshop on Optimization of Biological Sampling (WKBIOPTIM3; ICES, 2019) convened in 2019. New optimization algorithms were presented alongside developments and improvements of the work carried out in the earlier 2017 and 2018 workshops. Six different approaches/tools were presented: code developed under WKBIOPTIM 1 and 2 for optimization at sample level (SampleLevelOptim), SampleOptimRtool to optimize fish sampling for biological parameters, code for quantifying robustness of a length frequency distribution shape (SampleReferenceLevel), SDTool and BioSimTool as contributions from the STREAM Project to the optimization at sample-level and sampling design level, respectively, WKBIOPTIM code used for optimization at sampling design level (SimPop). Additionally, data exploration and biological simulation tools developed under the framework of FishPi<sup>2</sup> (FishPi4WKBioptim). R scripts for the different tools are available on the WKBIOPTIM3 GitHub (https://github.com/ices-eg/wk\_WKBIOPTIM3).



Usability testing, including thorough instructions, were a focus of the workshop. The workshop concluded with participants highlighting that specific documentation regarding quality indicators concepts and functions could also be very practical and useful for end users. Work of WKBIOPTIM will continue inter-sessional towards a final discussion of methodologies and results in 2021.

#### RCG

MSs have worked together since 2004 in Regional Coordination Meetings and then RCGs to coordinate national data collection programmes under the EU Data Collection Framework (DCF). In recent years, it became clear that regional data collection plans would offer a number of benefits over non-coordinated national sampling plans. These benefits include more appropriate sampling designs, more rigorous statistical methodology, harmonised data formats and the adoption of standardised protocols for collecting, storing and analysing data. Additionally, more cost-effective data collection is a likely result from more efficient and coordinated programmes. The establishment of regional sampling plans has, however, direct and indirect implications on the way data collection is currently organised between and within countries, and on the way data is stored, processed and disseminated to end-users.

Under Regulation (EU) 2017/1004, regional coordination is strengthened and expanded from one single meeting into a continuous process coordinated by RCGs for each marine region. RCGs are tasked to develop and implement procedures, methods, quality assurance and quality control for collecting and processing data, which will enable the improvement of the reliability of scientific advice. MSs should agree on minimum requirements for data quality, coverage and compatibility at regional level, taking into account the fact that some basins are managed jointly with third countries. When there is general agreement on the above at regional level, regional coordination groups are responsible, on the basis of that agreement, for the submission of a draft regional work plan for approval by the Commission.

Discussions and agreed recommendations by the RCG MED & BS in 2019 and 2020, related with regional work plan, are presented below.

#### RCG MED&BS 2019

The 3<sup>rd</sup> RCG MED&BS plenary meeting was held in Malta in 2019, during which the following issues related to regional work plans were presented and discussed (ToR4):

- <u>Feedback from STREAM project</u>: The main outcomes of the finalised STREAM project were presented during the meeting, including a list of proposed recommendations to be considered by the RCG MED&BS.
- Discussion on possibilities for the establishment of regional sampling plan for small pelagic fish in the Adriatic Sea: A proposal was presented by Croatia for the establishment of a regional sampling plan for small pelagic fish in the Adriatic Sea, aiming to ensure level play in the area, coordinate activities with third countries and FAO AdriaMed. The main goal is to follow more closely management needs in the area (multiannual management plan for fisheries on small pelagic stocks in the GFCM-GSA 17 and 18) and harmonize data collection methodologies for fisheries dependent and fisheries independent information.
- <u>Standardization of ageing procedures for small pelagic in the Adriatic Sea:</u> A problem was raised by Croatia concerning the use of different ageing protocols by experts involved in age



reading of small pelagic from research surveys and from biological monitoring of commercial fishery

The RCG MED&BS 2019 recommendations related to regional work plans are provided below: <u>Establishment of regional sampling plan for small pelagic fish in the Adriatic Sea (#1).</u>

The required follow-up actions and time-frame were:

- Appointment of national coordinators by relevant MS and establishment of a working group for the coordination of data collection for small pelagic fish in the Adriatic Sea (WG SPF-AS), by December 2019.
- Establishment of a regional sampling plan for small pelagic fish in the Adriatic Sea (RSP SPF-AS) from 2021
- Establishment of a regional work plan for small pelagic fish in the Adriatic Sea (RWP SPF-AS) from 2022.

<u>Workshop for Recreational Fishery (#2).</u> RCG Med&BS 2019 recommended continuation of the workshop for RF. A workshop on RF for the Mediterranean basin is necessary, where all countries will participate, to finalize a list of species to be sampled, methodologies and type of data to be collected.

<u>Speeding up the establishment of a scientific network for sampling optimization (#3).</u> MED&BS NCs should nominate national experts for participating in the network on sampling optimization; the nominations should be communicated to the RCG MED&BS chairs by November 2019.

<u>Training workshop on the use of the sampling optimization tools developed under STREAM project (#4).</u> The training workshop should be organised within 2020.

Data quality checks developed under the STREAM project (#5). RCG Med&BS 2019 recommended applying the data quality checks developed under the WP6 of the STREAM project before submitting data to the relevant Data Calls. To support MSs experts to familiarize with the R tools developed to perform data quality checks, the network on the sampling strategy optimization will also use those scripts during their activity. This will also streamline the training workshop in view of the network. A calendar for the implementation of the quality checks was also provided by the STREAM project (see STREAM Final Report).

<u>Fish stomach content analysis (#6).</u> RCG Med&BS 2019 recommended implementing the monitoring of fish stomach contents following the protocols provided by the STREAM project. The sampling and analysis protocols provided by STREAM (see Deliverable D4.1) will represent the basis for designing and implementing the data collection and analysis of stomach contents. Pilot studies on the species proposed by STREAM should be implemented under the Work Plans, by 2021.

<u>Biological parameters- ageing protocols (#7)</u>. RCG Med&BS 2019 recommended MSs to follow the agreed protocols from workshops for age reading, and to harmonize age reading protocols for all target species, in case it is not already done. MSs should make every effort to harmonize age reading and achieve common age reading protocols for fisheries dependent and fisheries independent data, on the level of MS and regional level, from 2020 onwards.

<u>Age reading workshop - Black Sea (#8).</u>RCG MED&BS 2019 recommended the organization of an Age Reading Workshop on turbot (*Schophthalmus maximus*) and piked dogfish (*Squalus acanthias*), by the end of 2021.

<u>Training workshop on PETS identification (#10).</u> RCG MED&BS 2019 recommended the organization of a Training workshop on PETS identification for all categories of PETS (marine mammals, sea birds, sharks and rays, reptiles), by the end of 2021.

<u>RCG Med&BS 2020</u>



The 4th RCG MED &BS took place virtually in 2020, during which the following issues related with regional work plans were presented and discussed (ToR7):

- Establishment of regional sampling plan for small pelagic fish in the Adriatic Sea -RCG Med&BS 2019 Recommendation 1. The Group was informed that the first meeting of the working group for the coordination of data collection for small pelagic fish in the Adriatic Sea (WG SPF-AS) was postponed with no further progress. In order to successfully establish the working group that will develop the RSP and RWP it is necessary to strengthen official communication between MSs and to coordinate more with GFCM and FAO AdriaMed as well as to ensure the involvement of third countries relevant for GSAs 17 and 18 (Albania and Montenegro).
- <u>Med&BS Regional project (MARE/2020/08 Annex 1).</u> The coordinator of the proposed project informed the Group that the objective of this proposal is to draft Regional Work Plans (RWPs) for the Mediterranean and Black Sea related to specific topics through a co-creative work process with the RCG Med&BS and the MSs. The Group was informed on the expected topics to be included in the RWPs, as well as the expected outcomes of the project.

The following recommendations related with regional work plan were recalled from 2019:

<u>Recreational fisheries (#6).</u> RCG Med&BS 2020 recommended continuation of the workshop for RF. A workshop on RF for the Mediterranean basin is necessary, where all countries will participate, to finalize a list of species to be sampled, methodologies and type of data to be collected.

<u>Speeding up the establishment of a scientific network for sampling optimization (#7).</u> RCG MED&BS 2020 recommended speeding up the establishment of a scientific network for sampling optimization. Med&BS NCs should nominate national experts for participating in the network on sampling optimization; the nominations should be communicated to the current moderator of the scientific network for sampling optimization (Ms Isabella Bitetto) and RCG Med&BS chairs.

<u>Training workshop on the use of the commercial sampling optimization tools developed under STREAM</u> <u>project (#8)</u>\*. RCG MED&BS 2020 recommended the organization of a training workshop on the use of the sampling optimization tools developed under STREAM project.

Data quality. Application of the data quality checks developed under the WP6 of the STREAM project (#9)\*. RCG Med&BS 2020 recommended applying the data quality checks developed under the WP6of the STREAM project before submitting data to the relevant Data Calls

\* For #8 and #9 it should be investigated if it is possible to combine the 2 WS in one week. 2021 or ASAP when the COVID-19 restrictions allow a physical meeting.

<u>Age reading workshop - Black Sea (#10)</u>. RCG MED&BS 2020 recommended the organization of an Age Reading Workshop on turbot (*S. maximus*) and picked dogfish (*S. acanthias*) by 2021.

<u>Training workshop on PETS identification (#11)</u>. RCG MED&BS 2020 recommended the organization of a Training workshop on PETS identification for all categories of PETS (marine mammals, sea birds, sharks and rays, reptiles) by 2021.



After initial work launched in 2012 under the RCM Med&BS umbrella, the Steering Committee (SC) for the Mediterranean and Black Sea Regional Database was re-established by the RCG MED&BS during the 2018 Annual Meeting, following the Regulation (EU) 2017/1004 According to this regulation, RDBs are introduced as an obligation, and the RCGs have the responsibility to develop and implement such RDBs, in cooperation with relevant end users.

The SC met for the first in Rome (28-30 January 2019) to discuss the development of the RDB for the Mediterranean and Black Sea. A second meeting took place as a virtual meeting on the 22<sup>nd</sup> March 2021, and a third meeting is planned on 12-13 July 2021. The work of the SC on the RDB will progress in strict cooperation with the activities of the grant funded under the Call MARE/2020/08 and aimed at developing the RDB for the Mediterranean and Black Sea (Med&BS RDBFIS; <u>https://medbsrdb.eu/</u>).

#### QUESTIONNAIRES

In order to identify the suitability of the regional sampling plans proposed in previous grants, the perception of concerned MSs with regard to the proposed plans and the data availability to comply with their requisites, a questionnaire was addressed to MSs in different sub-regions as follows:

- Western Mediterranean: GSAs 1, 5, 6 and 7 (Spain and France)
- West-Central Mediterranean: GSAs 9, 10 and 11 (Italy); GSA 15 (Malta)
- Adriatic: GSAs 17 and 18 (Italy, Slovenia and Croatia)
- Eastern Mediterranean: GSAs 22, 23 and 25 (Cyprus and Greece)
- Black Sea: GSA 29 (Bulgaria and Romania)

The different questionnaires (Annexes 1-6) contained questions on potential regional sampling plans related to commercial fisheries, stomach sampling, by catches/endangered species and recreational fisheries. Responses were received from all the MSs and sub-regions concerned.

#### **Commercial fisheries**

# Western Mediterranean: GSAs 1, 5, 6 and 7 (Spain and France)

Responses from the two concerned MSs stressed the relevance of having common approaches even when stocks are not shared, and therefore considered valuable to establish RSP and even enlarging their scope to other species such as GFCM priority species and target species of the Western Mediterranean multi annual plan for demersal fisheries<sup>14</sup>. The possibility of extending the scope of the RSPs to small-scale fisheries is also considered (France).

The information necessary to undertake the proposed RSP (anchovy and sardine in GSAs 1, 5, 6 and 7) is collected and available from commercial fisheries and from surveys at sea with some gaps in the last year in the case of Spain due to Covid-19 and administrative problems of the IEO. Both MSs consider the scenarios proposed by STREAM as sufficiently robust and do not identify any particular barrier to perform RSPs beyond the difficulties created by the pandemic.

Both MSs consider a priority further training on robust sampling strategies for commercial fisheries, including small scale, as a condition to implement RSPs in a harmonised way.

# West-Central Mediterranean GSAs 9-10-11(Italy) GSA 15 (Malta)

There is common agreement among the different actors involved in sampling activities in the subregion that it would be beneficial adopting regional sampling plans for shared stocks that are subject to regular stock assessment at international level. Some of the concerned scientists consider that the

#### <sup>14</sup>REGULATION (EU) 2019/1022



proposed case study for the sub-region (*Aristeus antennatus* and *Aristaeomorpha foliacea*) is too limited and that other stocks, subject to the Western Mediterranean multiannual plan for demersal fisheries (red mullet, deep-water rose shrimp and hake), should be also targeted. In the same way the possibility of enlarging the geographical area of coverage for the RSP so that GSA 8, Strait of Sicily and, in the future, some non-EU countries can also be considered.

The relevant information to comply with the requirements of the RSP in terms of catch, landings, effort, length composition of the catches and biological parameters is available and the outcomes of the scenarios performed in previous grants (e.g. namely STREAM) are sufficiently robust.

In this regard and, despite the clear need of training activities and tools for optimisation of sampling and harmonisation of the interpretation of biological information (e.g. maturity, growth), it seems that the availability of information is not the main barrier for implementing RSPs in the region.

In contrast, it can be concluded that other aspects, such as the national interests of concerned MSs, and the difficulties to agree on task sharing, data sharing policy and costs allocation are the main obstacles for implementing RSPs.

# Adriatic GSAs 17 and 18 (Italy, Croatia, Slovenia)

In the Adriatic area, GFCM and EU legal frameworks seem justifying the choice of the case study for small pelagic stocks and most responses to the questionnaire point out its adequacy, in line with the idea that shared stocks should benefit from RSPs. In this regard, there is large support to extend RSPs to cover also demersal stocks of common interest in the region (sole, hake, red mullet).

Data on landings, discards, effort, length frequencies and biological parameters from both fishing activity and surveys at sea is regularly collected in the concerned MSs and made available to the competent scientific bodies in charge of stock assessment (GFCM, STECF). In the opinion of the consulted parties, there seems to be a need for collecting information at haul level, including geographical position of the areas visited by the registered vessels in order to evaluate whether GSAs 17 and 18 should be considered in a combined way for biological sampling.

Work implemented in the STREAM project is considered a very good starting point. The analysis of Italian biological sampling included four scenarios. Considering additional scenarios, as well as combining information from all concerned MS, appears as a possible follow-up/ way forward. The role of RCG to ensure that the tools developed in previous grants are spread out among the relevant scientists is considered crucial

With regard to the identification of barriers that could have prevented so far the full implementation of RSPs in the region, the need to harmonise and optimise current sampling procedures, appears as a limiting factor for the implementation of RSPs. In addition, administrative and bureaucratic barriers to agree on sharing agreements, including costs, seem to have a negative effect when considering the establishment of RSPs.

In spite of the above considerations, it is recognised that, promoting training sessions on R tools, ecological data analysis and on common protocols for ageing and for maturity, would substantially help in the implementation of RSPs.

# Eastern Mediterranean: GSAs 22, 23 and 25 (Cyprus and Greece)

Eastern Mediterranean countries consider useful having RSPs, sharing of common approaches with other MS in the region concerning sampling methodology and data processing of commercial fisheries, endorsing minimum requirements to facilitate adequate quality. Nevertheless this approach should be further discussed within the stakeholders involved in DCF.

Cyprus does not consider useful sharing a regional plan of *M. merluccius*, *M. barbatus* and *A. foliacea* because *M. barbatus* is a coastal species and is not considered a shared stock among GSA 25 and GSAs



22&23. In STREAM case study, the analysis was done separately for GSA 25: *M. merluccius* in GSA 25 annual landings are around 3 tonnes, so the species is of minor importance; *A. foliacea* in GSA 25 has very low landings (around 1 tonne) and sampling of the species can be characterised as opportunistic. At the moment, the only shared stocks exploited by Cyprus concern large pelagics and RSPs should be useful for albacore, Bluefin tuna and swordfish for the whole Mediterranean.

Relevant data is collected by the two countries regarding the 3 species, but for *A. foliacea* the threshold of 200 tonnes applies, therefore only length variables are collected. Considering that an additional Mediterranean MS is exploiting *A. foliacea* in the relevant GSAs, Cyprus considers useful having an agreement among the 3 MSs for sampling EU catches in the area.

Regarding the scenarios performed in STREAM, Cyprus concludes that they are sufficiently robust. On the other hand, given the multi species nature and the high variability both in composition and the production of fisheries in Greek waters, further analysis based on longer and updated time series is considered necessary because in the scenarios performed by STREAM only two years of data were used. Therefore, the concerned MSs consider that the outcomes of the scenarios for the above species need further elaboration using additional data.

The countries consider that training on sampling optimization, quality checks on datasets, age reading and stomach analysis will be very helpful, as well as a common methodology to estimate "days at sea" and "fishing days" will be very useful.

# Black Sea: GSA 29 (Bulgaria and Romania)

In the Black Sea area, the idea of RSPs is well received and proposed species of commercial interest taken in consideration should be sprat, turbot and Rapana whelk.

Biological and fishing activity information is collected annually for the species: red mullet, turbot, horse mackerel, sprat, dogfish, anchovy and Rapana whelk by the MSs and they consider the scenarios performed in STREAM sufficiently robust.

There is a need in the region for training courses for standardization and optimization of biological sampling/analysis. Although the data is available for the implementation of RPSs, more working time for scientists to sample and analyse data is needed, according to Romania.

# Stomach content analysis

# Western Mediterranean: GSAs 1, 5, 6 and 7 (Spain and France)

Although the selected species can be considered as a good starting point, both MSs consider them limited if we want to improve the knowledge of the trophic relationships. In this regard, the approach followed by other regions (rolling system of changing species throughout the period of implementation of the EU-MAP) appears as more efficient, to have a comprehensive knowledge of these relationships. Pilot studies have not been implemented in the area in the last years. Spain collects samples for hake during the MEDITS survey, while France undertook a study in the mid-2000s.

In the opinion of France, the proposed number of stomachs to be collected needs to be reassessed and spatial considerations and prey availability have to be considered as the latter two are important sources of variation in the diet. Other factor to be considered is the difficulty to find valid samples as a high percentage of the fish have their stomach empty.

Regarding training needs, the harmonisation of protocols and good practices appears as a common need in the region, despite the fact that expertise in analysing stomach contents exists in both MSs.

# West-Central Mediterranean GSAs 9-10-11(Italy) GSA 15 (Malta)

The choice of species (hake at a first stage and then monkfishes) does not seem to satisfy all the consulted parties, in particular in relation to monkfish. Alternative species are proposed, for instance



small pelagic in order to have a wider knowledge of the trophic interactions or other with a higher commercial or ecological relevance (e.g., *A. antennatus*, *A. foliacea* or *Mullus* spp.).

The pilot study on hake developed in several GSAs in Italy has provided interesting outcomes to better understand the trophic relationships. In addition, the sampling protocols developed under the previous projects are considered useful and appropriate. It is however recognised by all concerned scientists in the region that there is a need to improve the skills in stomach sampling analysis and in prey identification.

### Adriatic GSAs 17 and 18 (Italy, Croatia, Slovenia)

The three MSs concerned consider that the choice of species (*M. merluccius* and *Lophius* spp.) are appropriate and could even be enlarged to include other iconic species, such as red mullet and sole. Croatia does not sample *Lophius* spp., while Slovenia has no plans for implementing stomach content studies for the time being.

As it was the case for GSAs 9, 10 and 11, the outcomes of the Italian pilot study provide a clear guidance from a methodological and sampling strategy point of view and also in terms of cost-efficiency. Nonetheless, responses from Croatia and Slovenia presume that the potential cost related to the collection and analysis of stomach would considerable increase the cost of the national plans, which, in their views, is a clear barrier for developing a regional sampling plan at the sub regional level.

Despite the achievements of previous grants on methodological aspects in relation to stomach content sampling, there is still a need for harmonisation in terms of methods and data storing. Some exchange exercise could be beneficial for sharing experiences and standardizing procedures. Further training on taxonomic aspects appears also as a short term need.

#### Eastern Mediterranean: GSAs 22, 23 and 25 (Cyprus and Greece)

The proposed species are appropriate for sampling for the MSs. In the case of Cyprus, the number of stomach contents cannot be ensured for hake and *Lophius* spp. because the number caught in survey are less than the proposed ones. In addition, *M. barbatus* should be taken in consideration as a species of interest.

In Greece, the results of a pilot study on *M. merluccius*, will be sent in response to the data call on pilot studies issued by the Commission, while in Cyprus, they started collecting stomach contents from samples of *M. barbatus* and *M. surmuletus*, though these are not included in National Work Plan and the results are not available yet.

The protocols, guidelines and tools for sampling provided in deliverable 3.3 of MARE/2014/19 Med&BS are suitable for both countries. More training courses, standardization and optimization of protocols are needed for the institutes involved in sampling on fish stomach contents.

#### Black Sea: GSA 29 (Bulgaria and Romania)

The three species considered relevant for the stomach content analysis in the Black Sea are in accordance with both MSs' opinion.

Regarding pilot studies, Bulgaria is performing under National Program for fisheries data collection, stomach content analysis for sprat since 2007, turbot since 2014 and for horse mackerel more sporadically; the data are collected two times per year, identifying stomach fullness and food components indexes. Under the National Program for fisheries data collection, Romania did not perform any pilot study, but has experience from previous grants like Goforit and Srcssmbsf (Strengthening the regional capacity to support the sustainable management of the Black Sea fisheries), where studies on stomach content have been carried out on turbot and sprat.

For the number of stomachs to be analysed, the MSs agreed with only one exception: there is a turbot ban between 15 April and 15 June, so the collection during that quarter cannot be ensured. In addition,



the countries highlighted the need for coordination between Bulgaria and Romania regarding the data collection and analysis.

#### Incidental by-catch

#### Western Mediterranean: GSAs 1, 5, 6 and 7 (Spain and France)

The proposed metiers are considered appropriate by the concerned MSs, although the choice could be enlarged in the future to gillnets, seiners and long liners.

No pilot studies have been implemented in the sub-region so far, although incidental catches are regularly monitored in France since 2019 in trawlers and a monitoring project (no pilot study) was implemented in GSA 8 on incidental by-catches for several fisheries.

Both MSs consider the proposed number of fishing days as unrealistic, costly and, therefore, difficult to implement. Moreover access of observers to vessels is becoming very difficult for safety (space) reasons and became more difficult after the pandemic.

Training in identification of species (for scientists and vessel's crew) and on VMEs appears necessary.

# Adriatic GSAs 17 and 18 (Italy, Croatia, Slovenia)

Although all responses agree that the proposed métier (bottom trawl targeting hake, red mullet and Norway lobster) is appropriate, some other métiers (e.g. long lines) are also considered as having an impact, in terms of catching vulnerable species. In the particular case of Croatia, all the métiers retained by the 90 % ranking system are subject to observation in relation to by-catches and incidental catches.

There is no agreement on the suitability of proposed number of sampling days, as it is considered excessive by some participants and, consequently, not cost efficient. Keeping in line with the GFCM recommendation of 0.5 % coverage seems a possible alternative.

From a methodological point of view, progress achieved under previous grants are considered as a good basis but further development would be necessary.

It is commonly agreed that the observation on board is a complex task that, in addition, requires a strong collaboration from fishermen, that sometimes could be a considerable obstacle, even when a fee is paid to rent the space on board. Combining the right fishing season, weather conditions, vessels and expert's availability appears as a major challenge.

Alternative solutions such as training fishermen on the filling of logbooks, species identification and handling before release are also considered by some concerned MSs.

Most responses stress the reinforced role that the RCG shall play to address methodological aspects.

# Black Sea: GSA 29 (Bulgaria and Romania)

The two countries consider the proposed metier appropriate.

In Romania, the data collection regarding incidental by-catch started in 2018 and is still ongoing in 2021 to evaluate the impact of fishing activities on the incidental catches of birds, mammals and fish species protected under EU legislation and international agreements, including the species listed in Table 1D of the EU MAP. Moreover, a pilot study concerning incidental by-catch of turbot in Rapana whelk fishery was carried out in the period 2017-2019.

Pilot studies have been conducted in 2017; since 2018, the surveys have been performed as regular data collection in both countries. The studies aimed at estimating the effect of Rapana whelk fishery (beam trawl gear) on the juvenile stages of bottom fish species, such as turbot and dogfish.

The number of fishing days is agreed by the countries, but a slight decrease in days on beam trawlers for Rapana whelk would have a positive impact on habitat and sea floor integrity.

Covid-19 situation is an identified barrier that might hinder proper data collection in the short term and also there is a need of coordinated data collection and analysis between countries.



#### **Recreational fisheries**

### Western Mediterranean: GSAs 1, 5, 6 and 7 (Spain and France)

Both MSs are implementing pilot studies in the framework of the EU MAP in the period 2020-21. The Spanish study aims at: a) characterizing and estimating catches and discards made by recreational fisheries and the impact on the species identified as targets, taking special account of the species that are also targeted by the commercial fishery; b) Comparison between catches from recreational fishery and commercial fisheries and c) development of a proposal of a survey for the recreational fishery to comply with DCF. In addition, Spain is running several studies at regional level in Andalucía, Murcia, Valencia, Catalonia and Balearic Islands.

France launched a study during 2017-19 but the results were unsatisfactory and some further actions are being implemented in a new pilot study on catch estimates ongoing in the framework of NWP 2020-21. The new study addresses the whole French recreational fisheries in the Mediterranean. Some protected areas (e.g., GSA8) have routine specific monitoring on recreational fisheries since 2010.

Consequently it can be stated that data on recreational fisheries are available for the totality of GSAs although, for the time being, there is no harmonisation in methodologies.

Outcomes of previous studies (STREAM) are considered to be very general and often based on the ICES expertise. The proposed guidelines are relevant but difficult to implement.

The difficulty to implement an official declaration form for recreational fishermen hampers the collection of relevant data.

Harmonisation of protocols and good practices is a cornerstone for the monitoring of recreational fisheries and can be one of the main points to address, should a training activity be organised on the issue of recreational fisheries.

#### West-Central Mediterranean GSAs 9-10-11(Italy) GSA 15 (Malta)

The Italian pilot study implemented during 2018-19 considered two case studies (Tyrrhenian and Adriatic). The study allowed for the estimation of number and distribution of anglers by region and the intensity of their activity. Preliminary results have been presented and discussed in different fora. Results are being refined during the period 2020-21.

With regard to Malta, a study on large pelagic recreational fishery with no conclusive outcomes was implemented during 2017-19. Further investigation is required.

#### Adriatic GSAs 17 and 18 (Italy, Croatia, Slovenia)

The three concerned MSs have implemented so far pilot studies in the region.

In the case of Italy, the work developed in 2018 and 2019 suggested that a number of species in addition to those that are mandatory under the EU-MAP, should be considered for further investigation and the study has been extended until the end of 2021.

Croatia conducted in 2019 an online survey focused in the three species or groups mandated by EU-MAP (eel, elasmobranches and tuna). It is expected to lead to the establishment of a national data collection system organised as a probabilistic survey as from 2022. The latter will be organised by areas, so that data can be compared with commercial ones, because they will be collected following the same scheme.



In Slovenia, data are annually collected and evaluated. Since 2017, a statistical methodology for estimating catch data from recreational fisheries was developed. The share of recreational fisheries in comparison to the commercial fisheries represents around 10 % and it is not focused on the same species as commercial fisheries.

#### Eastern Mediterranean: GSAs 22, 23 and 25 (Cyprus and Greece)

Pilot studies have been performed in the region. In Cyprus, RFs are regulated through the issuing of licenses, and information is collected by a nation-wide survey of the population in order to estimate the number of recreational fishermen. Information on catches per species, fishing method and temporal distribution of effort is collected. In Greece, surveys were made by telephone, while on-site survey were performed at three selected sites as representative of the marine areas surrounding the country. These surveys were aimed at achieving estimates of fishing effort and expenditures by recreational fishermen in Greece.

Countries concluded that the outcomes of Deliverables 5.1 of the STREAM project reflect the situation in the area. Greece also mentioned that the report successfully identified the key issues defining RFs, however preliminary data from the pilot survey suggest that recreational fishing may be a bigger issue than previously thought.

Concerning RFs, the protocols and guidelines provided in Deliverable 5.2 of the STREAM project are considered sufficient tools to implement successfully regional plans for RFs in the future by Greece. Cyprus underlined that the protocols and guidelines are helpful, but an agreement on the criteria for selecting the species for which biological data will be collected, is missing for implementing regional plan although a common list is under preparation under RCG Med&BS. There are concerns on the applicability of such a list on a sub-regional level.

Currently, for Greece the estimation of the "population" of recreational fishermen is considered important through national wide probabilistic surveys (e.g. telephone) and also the on-site validation of catches and biological parameters, since self-reporting has a lot of problems regarding misidentification of species or estimating lengths or weights. Potential future barriers, as Greece noted, are the lack of a register/fishing licensing system for both residents and non-residents recreational fishers, in combination with the tightening of the legal framework on GDRP, which makes it difficult to identify and contact recreational fishermen, impeding in that way the cooperation with the research institutes. Also, it is difficult to overcome mistrust towards government institutions and indifference of a large number of recreational fishers towards monitoring, management and conservation efforts. Other than the above, the impact of Covid-19 pandemic and the restrictions imposed have set significant setbacks to research activities. Cyprus added that RFs diversity in space, time, methods, target species and participants, makes the monitoring much more demanding, and the main concern is the availability of resources (people, time, money) for implementing such a plan.

# Black Sea: GSA 29 (Bulgaria and Romania)

The pilot studies are launched in both MSs: in Romania, they are planned for the period 2020-2021 with the final stage of the study in 2022; in Bulgaria, the pilot study was planned in 2020, but it was postponed for 2021, due to Covid-19 and administrative hinders. The impact of Romanian Black Sea RFs on total catches is negligible due to the lack of valuable and attractive species. This type of fishing is performed mainly from the coast and during the summer touristic season. Most catches consist of species of the Gobiidae family, such as black spotted goby (*Neogobius melanostomus*) and flat-head goby (*Mesogobius batracephalus*).

The status of RFs in the Black Sea is still unknown; however, it is thought that RFs may have a small impact on the commercial species catches, because some preliminary information reports that recreational catches are very low, and valuable species, such as those in Mediterranean, are not



present. The primary species that represents more than 90% of the catch according to Romania and Bulgaria is Rapana whelk, which is not targeted by the recreational fisheries. In Bulgaria, the next two species -sprat and turbot – which are commercially fished after Rapana whelk, are under quota and banned for recreational fisheries.

# **5. CONCLUSIONS**

In the light of the elements described in previous sections, significant work was developed under the umbrella of the EU MAP to cope with the main challenges of the Common Fisheries Policy (CFP). The collection of data for the protection of the marine environment and the sustainable management of all commercially exploited species, including ecosystem data relating to the impact of fisheries and biological data on recreational fisheries, where there is a potentially significant impact on the state of the stock, are amongst the defined priorities. In addition the regional dimension of the DCF has been considerably reinforced.

Further to the <u>analysis of the different actions implemented and their discussion with the RCG Med</u> <u>&BS</u>, the following conclusions and associated actions should be considered:

#### General

Regional sampling designs have the potential to improve the statistical validity, data quality and costeffectiveness of data collection and are directly related to the end-user needs. To develop and implement regional sampling designs, the primary need is to identify the fisheries most suitable for such regional designs.

Considerable progress has been achieved so far in view of the design and implementation of regional work plans in the Mediterranean and Black Sea regions; in particular through the grants MARE/2014/19 and STREAM and the RCG recommendations. The activities developed under EU grants and pilot studies have been aligned with the end-users (GFCM, STECF, ICES) needs, when these needs have been clearly defined. Despite this, a number of elements still need to be refined before such RSPs could be implemented.

# **Commercial Fisheries**

According to the majority of the Med and BS MSs, there is potential to develop RSPs at least at the sub-regional level and for shared stocks, given that the data required for their implementation are already regularly collected for most métiers and species/stocks. In this regard, future regional coordination shall rely upon common data formats and standardized codes.

In spite that the RSP identified and proposed by STREAM appear relevant, requirements under existing multiannual management plans (e.g. for the demersal stocks in the Western Mediterranean) should be prioritized when designing RSPs. Two types of barriers for the implementation of these RSPs are identified: methodological and administrative/political/financial. The relevant RCG for the region has a crucial role to play to overcome such barriers.

For the methodological barriers, mostly related to training needs in sampling optimisation and biological parameters interpretation, a number of activities have been planned by the RCG in the form of thematic workshops to be held in 2020 and 2021. The situation generated by the Covid 19 pandemic has prevented the realisation of several of them, which ideally require the physical presence of the participants. Should the pandemic situation remain, alternative possibilities (on line workshops) need to be explored by the RCG.

With regard to the administrative/political/financial obstacles, the sharing of effort and costs related to a potential implementation of the RSPs requires agreements among MSs. These agreements could be facilitated by the RCG and the involvement and commitment of the concerned National Correspondents. Definition of sampling units per MS might solve the problem of tasks/costs allocation.



Actions proposed:

- Organisation of an online Workshop on optimisation of sampling effort
- Exploring the possibility to hold online workshops on growth and maturity
- Organisation of a decision-making meeting concerning agreements for RSP
- Definition of sampling units:
  - Resume the work of the PGMed
  - Consultation at sub-regional level

#### Stomach content

Important efforts were deployed in the MARE/2014/19 and STREAM grants to develop appropriate methodologies for the study and analysis of the stomach contents and the RCG recommended implementing the relevant protocols under the National Plans. Although most MSs consider these protocols appropriate, according to the RCG, they are not fully implemented so far with some exceptions. The RCG meeting held in 2020 established 2021 as target date for the adoption of these protocols in all MSs. Regarding the choice of species and the amount of specimens to be analysed proposed by the STREAM project, there is no agreement among MSs. While MSs in the Black Sea considered these schemes appropriate, in the Mediterranean area some MSs consider that the proposed number of stomachs to be collected is excessive and thus not cost-effective. Reducing the effort in terms of number of stomachs to be collected may allow enlarging the number of species to be investigated, which may result, in the opinion of some MSs, in a better understanding of the trophic relationships.

The above aspects as well as the training element appear as limiting factors for the implementation of RSPs on stomach content analysis in the short term. Training sessions regarding the harmonization of methods and optimization of the existing protocols, discussions on the outcomes and methodology of the achieved pilot projects as well as the development of guidelines for prey taxonomic identification are proposed by the concerned MSs.

#### Actions proposed:

- Follow up of the implementation of the STREAM protocols by RCG (Meeting 2021)
- Discussion on the adequacy of the number of stomachs to be analysed as proposed by STREAM
- Discussion on the choice of species for study in the Mediterranean
- Organisation of online workshop on prey identification

#### Incidental by-catch

Most MS have included in their National Plans this activity either in the form of pilot projects or as routine sampling. The analysis of the outcomes of the pilot projects reveals that notable progress has been achieved in the monitoring of the relevant métiers as agreed by the RCG (otter bottom trawl, long lines and set nets for the Mediterranean; beam trawl Rapana fishery and turbot gillnets for the Black sea).

Almost all Mediterranean and Black Sea pilot studies referred to the FAO-GFCM methodology "Monitoring the incidental catch of vulnerable species in Mediterranean and Black Sea fisheries: Methodology for data collection".

In parallel, the métiers proposed in the framework of the STREAM project (bottom trawlers in the Western Mediterranean and in the Adriatic and beam trawl Rapana fishery in the Black Sea) appear as appropriate candidates to start implementing RSPs, although the suggested number of fishing days to



be covered are considered excessive by most MSs. It seems necessary to establish a balance between minimum and optimal requirements, in terms of trips or fishing days.

As for other data collection activities, collecting the relevant data for the monitoring of incidental catches of vulnerable and/or non-target species requires the presence of observers on board. Observers are considered the most reliable and useful means of collecting such data. However, this is not always an easy task, due to mistrust of the ship owners or for space limitations and safety aspects. It seems therefore that other alternative approaches (e.g. self-sampling, interview etc.) should be used. Self-sampling is based on fishermen completing logbooks while at sea. This methodology could involve the fishermen in the monitoring activities and in the identification of species and handling (whenever possible) before release. Interviews can also be of great use in gathering quantitative information, if the correct methodology is used. The use of different methodologies seems the best approach to achieve - adequate coverage.

Actions proposed

- Organisation of a training workshop on PETS identification covering all categories of PETS (marine mammals, sea birds, sharks and rays, reptiles).
- Discussion on the minimum and optimal levels of coverage for observers
- Exploring alternative approaches involving fishermen

#### **Recreational fisheries**

In general, for the whole Mediterranean and Black Sea regions, data on recreational fisheries are sparse and difficult to be gathered in a reliable way, as the license and information systems are not homogeneous. Several pilot studies have been implemented in most of the MSs with different approaches, intensity, coverage and reliability of results. Despite the progress achieved in previous grants, it is commonly agreed that further work is needed, in order to finalise results from the countries, especially regarding catches and biological data. Many pilot studies continue in 2020-2021, to adapt the sampling strategy to national specificities and to harmonise national sampling methodologies at a regional scale.

The new EU-MAP recommends that the list of species considered in recreational fisheries sampling plans shall take into account regional specificities. The work developed by the relevant GFCM Working Group and the RCG Workshop on RFs constitutes a good guidance to establish such lists.

During the above mentioned RCG Workshop, and based on contributions from all MS, a list of priority species was identified at marine region level for biological sampling, using the following categories:

- Eel (including in fresh water), elasmobranchs, highly migratory ICCAT species
- Species identified by GFCM as priority species
- Species agreed on regional level based on input from MSs

The estimation of the "population" of recreational fishers is considered important, and can be achieved through national wide probabilistic surveys (e.g., telephone surveys), as well as through on-site validation of catches and biological parameters, since self-reporting is linked to misidentification of species or estimating lengths or weights.

The RCG MED&BS 2021 meeting will check the list of species identified against the list of species which will be endorsed by GFCM SAC 2021 and DG MARE.

To this end, the role of the RCG appears crucial in order to organise relevant training activities (e.g. inter-sessional working group) to standardise data collection and analysis, in line with the FAO-GFCM Handbook and the outcomes of STREAM.

Actions proposed (based on the recommendations of the RCG Workshop)



- MS to ensure that their national methodology is in line with methodologies prescribed in the GFCM handbook on recreational fisheries starting from 2022
- RCG to organize another workshop to review list of species and discuss methodologies and type of data to be collected

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# **ANNEXES: Questionnaires sent to Member States**

# ANNEX 1 STREAMLINE GRANT QUESTIONNAIRE FOR WORKPACKAGE 1 Western Mediterranean Background

- One of the primary purposes of the RCGs is to prepare <u>regional work plans</u>, which should include sampling designs/plans, procedures, methods, quality assurance and quality control for collecting and processing data, and conditions for the delivery of data.
- To support the process for the establishment of RCGs and to provide support to their work, DG MARE launched <u>calls for proposals</u> in the years 2014 and 2016. In the case of the Mediterranean and Black Sea the selected grants (MARE/2014/19 Med&BS project and STREAM) tackled the very relevant use of exploring the scope for establishing regional cooperation in DCF activities.
- For data on <u>commercial fisheries</u>, these grants identified a list of stocks/fisheries/métiers across the Med and BS regions, presenting a wide scope for regional sampling and on that basis prepared proposals for establishing RSPs in different GSAs and métiers.
- For data on <u>impact of fisheries on the ecosystem</u>, they designed in both areas stomach sampling programme for several species as well as a sampling programme for by-catch of vulnerable species and identified relevant case studies.
- For <u>small scale fisheries</u> (SSF) and <u>recreational fisheries</u> (RF) STREAM explored the current knowledge and provided guidelines for sampling, processing, analyzing and managing catch, biological and spatial-temporal data in SSF and RF.
- In parallel with the work developed under these grants, several Member states implemented <u>pilot studies</u> under the umbrella of the DCF. These pilot studies addressed specifically recreational fisheries, stomach content analysis and incidental catches of vulnerable species and have been implemented or are being implemented by most concerned MS.
- For <u>recreational fisheries</u>, RCG 2019 recommended that a workshop be held to assess the outcomes of the pilot studies and use them in order to generate plans for regular data collection as well as to identify survey methods and data to be collected and adapted to the specific situation of each MS, on the basis of end user's needs.
- For <u>stomach content analysis</u> the sampling and analysis protocols provided by MARE/2014/19 Med&BS project and STREAM should represent the basis for designing and implementing the data collection and analysis of stomach contents. RCG recommended that pilot studies on the species proposed by STREAM should be implemented under the Work Plans.
- You can access STREAM (MARE/2016/22) and MARE/2014/19 Med&BS final reports and deliverables at this link: <u>https://datacollection.jrc.ec.europa.eu/docs/regional-grants</u>.

# State of play of Regional Plans in Med&BS

- The outputs of the grants and pilot studies were made available to the RCG Med&BS, and presented and discussed at the RCG meetings.
- At this stage, despite some common parts of national work plans have been elaborated and currently exist, discussions so far in the RCG Med&BS did not go sufficiently beyond the national perspectives to allow achieving concrete, coordinated regional approaches and implementation thereof.
- As a consequence, the RCG Med&BS has not come forward to date with proposals for regional work plans in the Mediterranean and Black Sea for approval by the Commission.



- Regarding pilot projects, their implementation throughout Member states has not been homogeneous and some differences among methodological approaches have been outlined (e.g. not use of tools developed under MARE/2014/19 Med&BS project and STREAM for stomach content analysis).
- Against this background there is a need to identify which barriers have prevented the development of regional work plans, including existing information gaps.
- This requires the screening of the readiness of the basic requisites that are considered to cope with the different recommendations and suggestions from the previous grants, from the pilot projects and from the RCG Med&BS outcomes.

#### Purpose

The current questionnaire was drafted under the STREAMLINE project ("Streamlining the establishment of regional work plans in the Mediterranean and Black Sea") granted under the EU Call for Proposal MARE/2020/08 (Strengthening regional cooperation in the field of data collection). This questionnaire is addressed to relevant stakeholders and scientists involved in the Fisheries Data Collection in order to establish *in fine* a "map" of what exists, what are the best elements and approaches already developed, which barriers have been identified that could prevent the development of regional work plans and what additional information is still necessary to be able to develop regional sampling plans.



#### **Commercial fisheries**

**<u>Rationale</u>**: In previous grants, a proposal for a sampling plan for commercial fisheries of <u>anchovy and</u> <u>sardine in GSAs 1, 5, 6 and 7</u> was selected as a priority case study. Optimal sampling sizes and precision levels for the relevant species/GSAs were estimated according to different methodological approaches.

Q1. Does your Member state consider useful having a regional sampling plan on commercial fisheries and, if so, on which species/GSAs?

Q2. <u>Biological and fishing activity information</u>: is the relevant information currently available for the concerned métiers/species? Please provide a list of the metadata available for these métiers/species/GSAs.

Q3. <u>Length sampling</u>: Do you consider that the outcomes of the scenarios performed in STREAM for each species and GSA are sufficiently robust?

Q4. Could you please identify current and potential future <u>barriers</u> for the implementation of a regional work plan for these stocks?

Q5. Which <u>additional biological and fishing activity information</u> do you consider necessary for the implementation of the proposed sampling plan (e.g., data by haul, fecundity?)

Q6. Which <u>training/coordination activities</u> on fishing activity and biological sampling/analysis are in your views needed to support the implementation of the regional work plan?

Q7. Have the modifications proposed in sampling effort a strong impact in <u>budgetary</u> terms?



#### Stomach contents

**Rationale** In previous grants, two species *Mercluccius merluccius* and *Lophius* spp. were considered as candidates for stomach contents sampling in your region. In this regard, a detailed proposal for sampling was designed including identification of length classes and number of stomachs to be collected/analysed per length class/quarter/GSA for commercial fisheries and for length class/GSA for surveys at sea.

Q8. Do you consider the <u>selected species</u> as the most appropriate for the purpose of regional sampling? There are other species that could have been selected?

Q9. Has your MS performed any pilot study on this particular topic? Please provide a brief summary of the outcomes.

Q10. Do you consider that the proposed number of stomachs to be analysed is realistic and feasible? If not please specify.

Q11. Is the proposed plan cost-efficient in your opinion? If not please specify

Q12. Are the protocols, tools and guidelines for sampling, processing and analyzing the stomach contents provided in deliverable 3.3 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q13. Could you please identify current and potential future barriers for the implementation of the plan?

Q14. Which training/coordination activities are in your views needed to support the implementation of a Regional Sampling Plan on fish stomach contents?



#### Incidental catches/by-catches

**Rationale** In previous grants, the métier targeting hake and shrimp in GSA 7 has been identified as the appropriate case study for monitoring of the by-catch of vulnerable species. Combining information from specific logbooks to be filled by fishermen together with information from observers on board is proposed as the appropriate methodological approach.

Q15. Do you consider that the proposed métier is the most appropriate for the objective of monitoring by-catch of vulnerable species? There are other métiers that could have been selected?

Q16. Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q17. Do you consider that the proposed number of fishing days to be monitored is realistic and feasible? If not please specify.

Q18. Are the protocols, tools and guidelines for monitoring incidental by catch and processing the collected data provided in Deliverable 3.2 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q19. Could you please identify current and potential future barriers for the implementation of the plan?

Q20. Which training/coordination activities are in your views needed to support the implementation of a regional work plan on the monitoring of incidental by catch of vulnerable species?



#### **Recreational fisheries**

**<u>Rationale</u>** Regarding recreational fisheries, it appears to be a limited and fragmented availability of information which make the adoption of RSP unviable in the short term. In this regard, progress achieved in previous grants remain limited to methodological approaches (notably effort mapping and guidelines for data collection) and the implementation of pilot studies was deemed as more appropriate and precautionary as a first step towards the design and further implementation of RSP.

Q21.Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q22. Can you please summarize the spatial and temporal availability of information on recreational fisheries in your region and the suitability for establishing RWP?

Q23. Do the outcomes of Deliverable 5.1 of the STREAM project ("Report on the availability, quality and existing gaps of transboundary data for SSF and RF in the CSs in relation to a regional perspective in the Mediterranean and Black Sea") reflect the situation in your Member state? If not please explain. Q24. Are the protocols and guidelines provided in Deliverable 5.2 of the STREAM project ("Guidelines on the best practice methodologies for sampling, processing, analysing and managing biological and spatial data on SSF and RF") adequate to implement regional plans for SSF and RF? If not, please specify.

Q25. Could you please identify current and potential future barriers for the implementation of regional plans for RF in your region?

Q26. Which training/coordination activities are in your views needed to support the implementation of RWP on RF?



# ANNEX 2 STREAMLINE GRANT QUESTIONNAIRE FOR WORKPACKAGE 1 GSAs 9, 10, 11 Background

- One of the primary purposes of the RCGs is to prepare <u>regional work plans</u>, which should include sampling designs/plans, procedures, methods, quality assurance and quality control for collecting and processing data, and conditions for the delivery of data.
- To support the process for the establishment of RCGs and to provide support to their work, DG MARE launched <u>calls for proposals</u> in the years 2014 and 2016. In the case of the Mediterranean and Black Sea the selected grants (MARE/2014/19 Med&BS project and STREAM) tackled the very relevant use of exploring the scope for establishing regional cooperation in DCF activities.
- For data on <u>commercial fisheries</u>, these grants identified a list of stocks/fisheries/métiers across the Med and BS regions, presenting a wide scope for regional sampling and on that basis prepared proposals for establishing RSPs in different GSAs and métiers.
- For data on <u>impact of fisheries on the ecosystem</u>, they designed in both areas stomach sampling programme for several species as well as a sampling programme for by-catch of vulnerable species and identified relevant case studies.
- For <u>small scale fisheries</u> (SSF) and <u>recreational fisheries</u> (RF) STREAM explored the current knowledge and provided guidelines for sampling, processing, analyzing and managing catch, biological and spatial-temporal data in SSF and RF.
- In parallel with the work developed under these grants, several Member states implemented <u>pilot studies</u> under the umbrella of the DCF. These pilot studies addressed specifically recreational fisheries, stomach content analysis and incidental catches of vulnerable species and have been implemented or are being implemented by most concerned MS.
- For <u>recreational fisheries</u>, RCG 2019 recommended that a workshop be held to assess the outcomes of the pilot studies and use them in order to generate plans for regular data collection as well as to identify survey methods and data to be collected and adapted to the specific situation of each MS, on the basis of end user's needs.
- For <u>stomach content analysis</u> the sampling and analysis protocols provided by MARE/2014/19 Med&BS project and STREAM should represent the basis for designing and implementing the data collection and analysis of stomach contents. RCG recommended that pilot studies on the species proposed by STREAM should be implemented under the Work Plans.
- You can access STREAM (MARE/2016/22) and MARE/2014/19 Med&BS final reports and deliverables at this link: <u>https://datacollection.jrc.ec.europa.eu/docs/regional-grants</u>.

# State of play of Regional Plans in Med&BS

- The outputs of the grants and pilot studies were made available to the RCG Med&BS, and presented and discussed at the RCG meetings.
- At this stage, despite some common parts of national work plans have been elaborated and currently exist, discussions so far in the RCG Med&BS did not go sufficiently beyond the national perspectives to allow achieving concrete, coordinated regional approaches and implementation thereof.
- As a consequence, the RCG Med&BS has not come forward to date with proposals for regional work plans in the Mediterranean and Black Sea for approval by the Commission.
- Regarding pilot projects, their implementation throughout Member states has not been homogeneous and some differences among methodological approaches have been outlined

(e.g. not use of tools developed under MARE/2014/19 Med&BS project and STREAM for stomach content analysis).

- Against this background there is a need to identify which barriers have prevented the development of regional work plans, including existing information gaps.
- This requires the screening of the readiness of the basic requisites that are considered to cope with the different recommendations and suggestions from the previous grants, from the pilot projects and from the RCG Med&BS outcomes.

#### Purpose

The current questionnaire was drafted under the STREAMLINE project ("Streamlining the establishment of regional work plans in the Mediterranean and Black Sea") granted under the EU Call for Proposal MARE/2020/08 (Strengthening regional cooperation in the field of data collection). This questionnaire is addressed to relevant stakeholders and scientists involved in the Fisheries Data Collection in order to establish *in fine* a "map" of what exists, what are the best elements and approaches already developed, which barriers have been identified that could prevent the development of regional work plans and what additional information is still necessary to be able to develop regional sampling plans.



#### **Commercial fisheries**

Rationale: In previous grants, a proposal for a sampling plan for commercial fisheries of <u>Aristeus</u> <u>antennatus</u> and <u>Aristeomorpha foliacea</u> in GSAs 9, 10 and 11 was selected as a priority case study. Optimal sampling sizes and precision levels for the relevant species/GSAs were estimated according to different methodological approaches.

Q1. Does your Member state consider useful having a regional sampling plan on commercial fisheries and, if so, on which species/GSAs?

Q2. <u>Biological and fishing activity information</u>: is the relevant information currently available for the concerned métiers/species? Please provide a list of the metadata available for these métiers/species/GSAs.

Q3. <u>Length sampling</u>: Do you consider that the outcomes of the scenarios performed in STREAM for each species and GSA are sufficiently robust?

Q4. Could you please identify current and potential future <u>barriers</u> for the implementation of a regional work plan for these stocks?

Q5. Which <u>additional biological and fishing activity information</u> do you consider necessary for the implementation of the proposed sampling plan (e.g., data by haul, fecundity?)

Q6. Which <u>training/coordination activities</u> on fishing activity and biological sampling/analysis are in your views needed to support the implementation of the regional work plan?

Q7. Have the modifications proposed in sampling effort a strong impact in <u>budgetary</u> terms?



#### Stomach contents

**Rationale** In previous grants, two species *Mercluccius merluccius* and *Lophius* spp. were considered as candidates for stomach contents sampling in your region. In this regard, a detailed proposal for sampling was designed including identification of length classes and number of stomachs to be collected/analysed per length class/quarter/GSA for commercial fisheries and for length class/GSA for surveys at sea.

Q8. Do you consider the <u>selected species</u> as the most appropriate for the purpose of regional sampling? There are other species that could have been selected?

Q9. Has your MS performed any pilot study on this particular topic? Please provide a brief summary of the outcomes.

Q10. Do you consider that the proposed number of stomachs to be analysed is realistic and feasible? If not please specify.

Q11. Is the proposed plan cost-efficient in your opinion? If not please specify

Q12. Are the protocols, tools and guidelines for sampling, processing and analyzing the stomach contents provided in deliverable 3.3 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q13. Could you please identify current and potential future barriers for the implementation of the plan?

Q14. Which training/coordination activities are in your views needed to support the implementation of a Regional Sampling Plan on fish stomach contents?



#### **Recreational fisheries**

**Rationale** Regarding recreational fisheries, it appears to be a limited and fragmented availability of information which make the adoption of RSP unviable in the short term. In this regard, progress achieved in previous grants remain limited to methodological approaches (notably effort mapping and guidelines for data collection) and the implementation of pilot studies was deemed as more appropriate and precautionary as a first step towards the design and further implementation of RSP.

Q15.Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q16. Can you please summarize the spatial and temporal availability of information on recreational fisheries in your region and the suitability for establishing RWP?

Q17. Do the outcomes of Deliverable 5.1 of the STREAM project ("Report on the availability, quality and existing gaps of transboundary data for SSF and RF in the CSs in relation to a regional perspective in the Mediterranean and Black Sea") reflect the situation in your Member state? If not please explain. Q18. Are the protocols and guidelines provided in Deliverable 5.2 of the STREAM project ("Guidelines on the best practice methodologies for sampling, processing, analysing and managing biological and spatial data on SSF and RF") adequate to implement regional plans for SSF and RF? If not, please specify.

Q19. Could you please identify current and potential future barriers for the implementation of regional plans for RF in your region?

Q20. Which training/coordination activities are in your views needed to support the implementation of RWP on RF?



# ANNEX 3 STREAMLINE GRANT QUESTIONNAIRE FOR WORKPACKAGE 1 GSA 15 Background

- One of the primary purposes of the RCGs is to prepare <u>regional work plans</u>, which should include sampling designs/plans, procedures, methods, quality assurance and quality control for collecting and processing data, and conditions for the delivery of data.
- To support the process for the establishment of RCGs and to provide support to their work, DG MARE launched <u>calls for proposals</u> in the years 2014 and 2016. In the case of the Mediterranean and Black Sea the selected grants (MARE/2014/19 Med&BS project and STREAM) tackled the very relevant use of exploring the scope for establishing regional cooperation in DCF activities.
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- For data on <u>impact of fisheries on the ecosystem</u>, they designed in both areas stomach sampling programme for several species as well as a sampling programme for by-catch of vulnerable species and identified relevant case studies.
- For <u>small scale fisheries</u> (SSF) and <u>recreational fisheries</u> (RF) STREAM explored the current knowledge and provided guidelines for sampling, processing, analyzing and managing catch, biological and spatial-temporal data in SSF and RF.
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- For <u>recreational fisheries</u>, RCG 2019 recommended that a workshop be held to assess the outcomes of the pilot studies and use them in order to generate plans for regular data collection as well as to identify survey methods and data to be collected and adapted to the specific situation of each MS, on the basis of end user's needs.
- For <u>stomach content analysis</u> the sampling and analysis protocols provided by MARE/2014/19 Med&BS project and STREAM should represent the basis for designing and implementing the data collection and analysis of stomach contents. RCG recommended that pilot studies on the species proposed by STREAM should be implemented under the Work Plans.
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# State of play of Regional Plans in Med&BS

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- Regarding pilot projects, their implementation throughout Member states has not been homogeneous and some differences among methodological approaches have been outlined

(e.g. not use of tools developed under MARE/2014/19 Med&BS project and STREAM for stomach content analysis).

- Against this background there is a need to identify which barriers have prevented the development of regional work plans, including existing information gaps.
- This requires the screening of the readiness of the basic requisites that are considered to cope with the different recommendations and suggestions from the previous grants, from the pilot projects and from the RCG Med&BS outcomes.

#### Purpose

The current questionnaire was drafted under the STREAMLINE project ("Streamlining the establishment of regional work plans in the Mediterranean and Black Sea") granted under the EU Call for Proposal MARE/2020/08 (Strengthening regional cooperation in the field of data collection). This questionnaire is addressed to relevant stakeholders and scientists involved in the Fisheries Data Collection in order to establish *in fine* a "map" of what exists, what are the best elements and approaches already developed, which barriers have been identified that could prevent the development of regional work plans and what additional information is still necessary tobe able to develop regional sampling plans.



# **Commercial fisheries**

**<u>Rationale</u>**: In previous grants, proposals for a sampling plans for some commercial fisheries and GSAs were selected as priority case studies. Optimal sampling sizes and precision levels for the relevant species/GSAs were estimated according to different methodological approaches.

Q1. Does your Member state consider useful having a regional sampling plan on commercial fisheries and, if so, on which species/GSAs?

Q2. <u>Biological and fishing activity information</u>: is the information currently available in your MS relevant for the concerned métiers/species? Please provide a list of the metadata available for these métiers/species/GSA.

Q3. <u>Length sampling</u>: Do you consider that the outcomes of the scenarios performed in STREAM for each species and GSA are sufficiently robust and applicable to your GSA?

Q4. Could you please identify current and potential future <u>barriers</u> for the implementation of regional work plans in your GSA?

Q5. Which <u>additional biological and fishing activity information</u> do you consider necessary for the implementation of the proposed sampling plan (e.g., data by haul, fecundity)

Q6. Which <u>training/coordination activities</u> on fishing activity and biological sampling/analysis are in your views needed to support the implementation of the regional work plan?



#### Stomach contents

**Rationale** In previous grants, two species *Mercluccius merluccius* and *Lophius* spp. were considered as candidates for stomach contents sampling in several Mediterranean GSAs. In this regard, a detailed proposal for sampling was designed including identification of length classes and number of stomachs to be collected/analysed per length class/quarter/GSA for commercial fisheries and for length class/GSA for surveys at sea.

Q7. Do you consider the <u>selected species</u> as the most appropriate for the purpose of regional sampling? There are other species that could have been selected?

Q8. Has your MS performed any pilot study on this particular topic? Please provide a brief summary of the outcomes.

Q9. Do you consider that the proposed number of stomachs to be analysed is realistic and feasible? If not please specify.

Q10. Is the proposed plan cost-efficient in your opinion? If not please specify

Q11. Are the protocols, tools and guidelines for sampling, processing and analyzing the stomach contents provided in deliverable 3.3 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q12. Could you please identify current and potential future barriers for the implementation of the plan?

Q13. Which training/coordination activities are in your views needed to support the implementation of a Regional Sampling Plan on fish stomach contents?



#### Incidental catches/by-catches

**Rationale** In previous grants, some métiers/GSAs have been identified as appropriate case studies for monitoring of the by-catch of vulnerable species. Combining information from specific logbooks to be filled by fishermen together with information from observers on board is proposed as the appropriate methodological approach.

Q14. Which métier(s) do you consider as the most appropriate for the objective of monitoring bycatch of vulnerable species? There are other métiers that could have been selected?

Q15. Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q16. Are the protocols, tools and guidelines for monitoring incidental by catch and processing the collected data provided in Deliverable 3.2 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q17. Could you please identify current and potential future barriers for the implementation of similar plans in your GSA?

Q18. Which training/coordination activities are in your views needed to support the implementation of a regional work plan on the monitoring of incidental by catch of vulnerable species?



#### **Recreational fisheries**

**Rationale** Regarding recreational fisheries, it appears to be a limited and fragmented availability of information which make the adoption of RSP unviable in the short term. In this regard, progress achieved in previous grants remain limited to methodological approaches (notably effort mapping and guidelines for data collection) and the implementation of pilot studies was deemed as more appropriate and precautionary as a first step towards the design and further implementation of RSP.

Q21.Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q22. Can you please summarize the spatial and temporal availability of information on recreational fisheries in your region and the suitability for establishing RWP?

Q23. Do the outcomes of Deliverable 5.1 of the STREAM project ("Report on the availability, quality and existing gaps of transboundary data for SSF and RF in the CSs in relation to a regional perspective in the Mediterranean and Black Sea") reflect the situation in your Member state? If not please explain. Q24. Are the protocols and guidelines provided in Deliverable 5.2 of the STREAM project ("Guidelines on the best practice methodologies for sampling, processing, analysing and managing biological and spatial data on SSF and RF") adequate to implement regional plans for SSF and RF? If not, please specify.

Q25. Could you please identify current and potential future barriers for the implementation of regional plans for RF in your region?

Q26. Which training/coordination activities are in your views needed to support the implementation of RWP on RF?

# ANNEX 4 STREAMLINE GRANT QUESTIONNAIRE FOR WORKPACKAGE 1 Adriatic Background

- One of the primary purposes of the RCGs is to prepare <u>regional work plans</u>, which should include sampling designs/plans, procedures, methods, quality assurance and quality control for collecting and processing data, and conditions for the delivery of data.
- To support the process for the establishment of RCGs and to provide support to their work, DG MARE launched <u>calls for proposals</u> in the years 2014 and 2016. In the case of the Mediterranean and Black Sea the selected grants (MARE/2014/19 Med&BS project and STREAM) tackled the very relevant use of exploring the scope for establishing regional cooperation in DCF activities.
- For data on <u>commercial fisheries</u>, these grants identified a list of stocks/fisheries/métiers across the Med and BS regions, presenting a wide scope for regional sampling and on that basis prepared proposals for establishing RSPs in different GSAs and métiers.



- For data on <u>impact of fisheries on the ecosystem</u>, they designed in both areas stomach sampling programme for several species as well as a sampling programme for by-catch of vulnerable species and identified relevant case studies.
- For <u>small scale fisheries</u> (SSF) and <u>recreational fisheries</u> (RF) STREAM explored the current knowledge and provided guidelines for sampling, processing, analyzing and managing catch, biological and spatial-temporal data in SSF and RF.
- In parallel with the work developed under these grants, several Member states implemented <u>pilot studies</u> under the umbrella of the DCF. These pilot studies addressed specifically recreational fisheries, stomach content analysis and incidental catches of vulnerable species and have been implemented or are being implemented by most concerned MS.
- For <u>recreational fisheries</u>, RCG 2019 recommended that a workshop be held to assess the outcomes of the pilot studies and use them in order to generate plans for regular data collection as well as to identify survey methods and data to be collected and adapted to the specific situation of each MS, on the basis of end user's needs.
- For <u>stomach content analysis</u> the sampling and analysis protocols provided by MARE/2014/19 Med&BS project and STREAM should represent the basis for designing and implementing the data collection and analysis of stomach contents. RCG recommended that pilot studies on the species proposed by STREAM should be implemented under the Work Plans.
- You can access STREAM (MARE/2016/22) and MARE/2014/19 Med&BS final reports and deliverables at this link: <u>https://datacollection.jrc.ec.europa.eu/docs/regional-grants</u>.

# State of play of Regional Plans in Med&BS

- The outputs of the grants and pilot studies were made available to the RCG Med&BS, and presented and discussed at the RCG meetings.
- At this stage, despite some common parts of national work plans have been elaborated and currently exist, discussions so far in the RCG Med&BS did not go sufficiently beyond the national perspectives to allow achieving concrete, coordinated regional approaches and implementation thereof.
- As a consequence, the RCG Med&BS has not come forward to date with proposals for regional work plans in the Mediterranean and Black Sea for approval by the Commission.
- Regarding pilot projects, their implementation throughout Member states has not been homogeneous and some differences among methodological approaches have been outlined (e.g. not use of tools developed under MARE/2014/19 Med&BS project and STREAM for stomach content analysis).
- Against this background there is a need to identify which barriers have prevented the development of regional work plans, including existing information gaps.
- This requires the screening of the readiness of the basic requisites that are considered to cope with the different recommendations and suggestions from the previous grants, from the pilot projects and from the RCG Med&BS outcomes.

#### Purpose

The current questionnaire was drafted under the STREAMLINE project ("Streamlining the establishment of regional work plans in the Mediterranean and Black Sea") granted under the EU Call for Proposal MARE/2020/08 (Strengthening regional cooperation in the field of data collection). This questionnaire is addressed to relevant stakeholders and scientists involved in the Fisheries Data Collection in order to establish *in fine* a "map" of what exists, what are the best elements and approaches already developed, which barriers have been identified that could prevent the



development of regional work plans and what additional information is still necessary tobe able to develop regional sampling plans.

#### **Commercial fisheries**

**<u>Rationale</u>**: In previous grants, a proposal for a sampling plan for commercial fisheries of <u>anchovy and</u> <u>sardine in GSAs 17 and 18</u> was selected as a priority case study. Optimal sampling sizes and precision levels for the relevant species/GSAs were estimated according to different methodological approaches.

Q1. Does your Member state consider useful having a regional sampling plan on commercial fisheries and, if so, on which species/GSAs?

Q2. <u>Biological and fishing activity information</u>: is the relevant information currently available for the concerned métiers/species? Please provide a list of the metadata available for these métiers/species/GSAs.

Q3. <u>Length sampling</u>: Do you consider that the outcomes of the scenarios performed in STREAM for each species and GSA are sufficiently robust?

Q4. Could you please identify current and potential future <u>barriers</u> for the implementation of a regional work plan for these stocks?

Q5. Which <u>additional biological and fishing activity information</u> do you consider necessary for the implementation of the proposed sampling plan (e.g., data by haul, fecundity?)

Q6. Which <u>training/coordination activities</u> on fishing activity and biological sampling/analysis are in your views needed to support the implementation of the regional work plan?

Q7. Have the modifications proposed in sampling effort a strong impact in <u>budgetary</u> terms?



#### Stomach contents

**Rationale** In previous grants, two species *Mercluccius merluccius* and *Lophius* spp. were considered as candidates for stomach contents sampling in your region. In this regard, a detailed proposal for sampling was designed including identification of length classes and number of stomachs to be collected/analysed per length class/quarter/GSA for commercial fisheries and for length class/GSA for surveys at sea.

Q8. Do you consider the <u>selected species</u> as the most appropriate for the purpose of regional sampling? There are other species that could have been selected?

Q9. Has your MS performed any pilot study on this particular topic? Please provide a brief summary of the outcomes.

Q10. Do you consider that the proposed number of stomachs to be analysed is realistic and feasible? If not please specify.

Q11. Is the proposed plan cost-efficient in your opinion? If not please specify

Q12. Are the protocols, tools and guidelines for sampling, processing and analyzing the stomach contents provided in deliverable 3.3 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q13. Could you please identify current and potential future barriers for the implementation of the plan?

Q14. Which training/coordination activities are in your views needed to support the implementation of a Regional Sampling Plan on fish stomach contents?



### Incidental catches/by-catches

**Rationale** In previous grants, the métier targeting hake, red mullet and Norway lobster in GSAs 17 and 18has been identified as the appropriate case study for monitoring of the by-catch of vulnerable species. Combining information from specific logbooks to be filled by fishermen together with information from observers on board is proposed as the appropriate methodological approach.

Q15. Do you consider that the proposed métier is the most appropriate for the objective of monitoring by-catch of vulnerable species? There are other métiers that could have been selected?

Q16. Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q17. Do you consider that the proposed number of fishing days to be monitored is realistic and feasible? If not please specify.

Q18. Are the protocols, tools and guidelines for monitoring incidental by catch and processing the collected data provided in Deliverable 3.2 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q19. Could you please identify current and potential future barriers for the implementation of the plan?

Q20. Which training/coordination activities are in your views needed to support the implementation of a regional work plan on the monitoring of incidental by catch of vulnerable species?



#### **Recreational fisheries**

**Rationale** Regarding recreational fisheries, it appears to be a limited and fragmented availability of information which make the adoption of RSP unviable in the short term. In this regard, progress achieved in previous grants remain limited to methodological approaches (notably effort mapping and guidelines for data collection) and the implementation of pilot studies was deemed as more appropriate and precautionary as a first step towards the design and further implementation of RSP.

Q21.Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q22. Can you please summarize the spatial and temporal availability of information on recreational fisheries in your region and the suitability for establishing RWP?

Q23. Do the outcomes of Deliverable 5.1 of the STREAM project ("Report on the availability, quality and existing gaps of transboundary data for SSF and RF in the CSs in relation to a regional perspective in the Mediterranean and Black Sea") reflect the situation in your Member state? If not please explain. Q24. Are the protocols and guidelines provided in Deliverable 5.2 of the STREAM project ("Guidelines on the best practice methodologies for sampling, processing, analysing and managing biological and spatial data on SSF and RF") adequate to implement regional plans for SSF and RF? If not, please specify.

Q25. Could you please identify current and potential future barriers for the implementation of regional plans for RF in your region?

Q26. Which training/coordination activities are in your views needed to support the implementation of RWP on RF?

# ANNEX 5 STREAMLINE GRANT QUESTIONNAIRE FOR WORKPACKAGE 1 East Mediterranean GSAs 23-24-25 Background

- One of the primary purposes of the RCGs is to prepare <u>regional work plans</u>, which should include sampling designs/plans, procedures, methods, quality assurance and quality control for collecting and processing data, and conditions for the delivery of data.
- To support the process for the establishment of RCGs and to provide support to their work, DG MARE launched <u>calls for proposals</u> in the years 2014 and 2016. In the case of the Mediterranean and Black Sea the selected grants (MARE/2014/19 Med&BS project and STREAM) tackled the very relevant use of exploring the scope for establishing regional cooperation in DCF activities.
- For data on <u>commercial fisheries</u>, these grants identified a list of stocks/fisheries/métiers across the Med and BS regions, presenting a wide scope for regional sampling and on that basis prepared proposals for establishing RSPs in different GSAs and métiers.



- For data on <u>impact of fisheries on the ecosystem</u>, they designed in both areas stomach sampling programme for several species as well as a sampling programme for by-catch of vulnerable species and identified relevant case studies.
- For <u>small scale fisheries</u> (SSF) and <u>recreational fisheries</u> (RF) STREAM explored the current knowledge and provided guidelines for sampling, processing, analyzing and managing catch, biological and spatial-temporal data in SSF and RF.
- In parallel with the work developed under these grants, several Member states implemented <u>pilot studies</u> under the umbrella of the DCF. These pilot studies addressed specifically recreational fisheries, stomach content analysis and incidental catches of vulnerable species and have been implemented or are being implemented by most concerned MS.
- For <u>recreational fisheries</u>, RCG 2019 recommended that a workshop be held to assess the outcomes of the pilot studies and use them in order to generate plans for regular data collection as well as to identify survey methods and data to be collected and adapted to the specific situation of each MS, on the basis of end user's needs.
- For <u>stomach content analysis</u> the sampling and analysis protocols provided by MARE/2014/19 Med&BS project and STREAM should represent the basis for designing and implementing the data collection and analysis of stomach contents. RCG recommended that pilot studies on the species proposed by STREAM should be implemented under the Work Plans.
- You can access STREAM (MARE/2016/22) and MARE/2014/19 Med&BS final reports and deliverables at this link: <u>https://datacollection.jrc.ec.europa.eu/docs/regional-grants</u>.

# State of play of Regional Plans in Med&BS

- The outputs of the grants and pilot studies were made available to the RCG Med&BS, and presented and discussed at the RCG meetings.
- At this stage, despite some common parts of national work plans have been elaborated and currently exist, discussions so far in the RCG Med&BS did not go sufficiently beyond the national perspectives to allow achieving concrete, coordinated regional approaches and implementation thereof.
- As a consequence, the RCG Med&BS has not come forward to date with proposals for regional work plans in the Mediterranean and Black Sea for approval by the Commission.
- Regarding pilot projects, their implementation throughout Member states has not been homogeneous and some differences among methodological approaches have been outlined (e.g. not use of tools developed under MARE/2014/19 Med&BS project and STREAM for stomach content analysis).
- Against this background there is a need to identify which barriers have prevented the development of regional work plans, including existing information gaps.
- This requires the screening of the readiness of the basic requisites that are considered to cope with the different recommendations and suggestions from the previous grants, from the pilot projects and from the RCG Med&BS outcomes.

#### Purpose

The current questionnaire was drafted under the STREAMLINE project ("Streamlining the establishment of regional work plans in the Mediterranean and Black Sea") granted under the EU Call for Proposal MARE/2020/08 (Strengthening regional cooperation in the field of data collection). This questionnaire is addressed to relevant stakeholders and scientists involved in the Fisheries Data Collection in order to establish *in fine* a "map" of what exists, what are the best elements and approaches already developed, which barriers have been identified that could prevent the



development of regional work plans and what additional information is still necessary to be able to develop regional sampling plans.



#### **Commercial fisheries**

Rationale: In previous grants, a proposal for a sampling plan for commercial fisheries of <u>Merluccius</u> <u>merluccius</u>, <u>Mullus barbatus</u> and <u>Aristeaomorpha foliacea</u> in GSAs 22, 23 and 25 was selected as a priority case study. Optimal sampling sizes and precision levels for the relevant species/GSAs were estimated according to different methodological approaches.

Q1. Does your Member state consider useful having a regional sampling plan on commercial fisheries and, if so, on which species/GSAs?

Q2. <u>Biological and fishing activity information</u>: is the relevant information currently available for the concerned métiers/species? Please provide a list of the metadata available for these métiers/species/GSAs.

Q3. <u>Length sampling</u>: Do you consider that the outcomes of the scenarios performed in STREAM for each species and GSA are sufficiently robust?

Q4. Could you please identify current and potential future <u>barriers</u> for the implementation of a regional work plan for these stocks?

Q5. Which <u>additional biological and fishing activity information</u> do you consider necessary for the implementation of the proposed sampling plan (e.g., data by haul, fecundity?)

Q6. Which <u>training/coordination activities</u> on fishing activity and biological sampling/analysis are in your views needed to support the implementation of the regional work plan?

Q7. Have the modifications proposed in sampling effort a strong impact in <u>budgetary</u> terms?



#### Stomach contents

**Rationale** In previous grants, two species *Mercluccius merluccius* and *Lophius* spp. were considered as candidates for stomach contents sampling in your region. In this regard, a detailed proposal for sampling was designed including identification of length classes and number of stomachs to be collected/analysed per length class/quarter/GSA for commercial fisheries and for length class/GSA for surveys at sea.

Q8. Do you consider the <u>selected species</u> as the most appropriate for the purpose of regional sampling? There are other species that could have been selected?

Q9. Has your MS performed any pilot study on this particular topic? Please provide a brief summary of the outcomes.

Q10. Do you consider that the proposed number of stomachs to be analysed is realistic and feasible? Q11. Is the proposed plan cost-efficient in your opinion? If not please specify

Q12. Are the protocols, tools and guidelines for sampling, processing and analyzing the stomach contents provided in deliverable 3.3 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q13. Could you please identify current and potential future barriers for the implementation of the plan?

Q14. Which training/coordination activities are in your views needed to support the implementation of a Regional Sampling Plan on fish stomach contents?



#### **Recreational fisheries**

**Rationale** Regarding recreational fisheries, it appears to be a limited and fragmented availability of information which make the adoption of RSP unviable in the short term. In this regard, progress achieved in previous grants remain limited to methodological approaches (notably effort mapping and guidelines for data collection) and the implementation of pilot studies was deemed as more appropriate and precautionary as a first step towards the design and further implementation of RSP.

Q15.Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q16. Can you please summarize the spatial and temporal availability of information on recreational fisheries in your region and the suitability for establishing RWP?

Q17. Do the outcomes of Deliverable 5.1 of the STREAM project ("Report on the availability, quality and existing gaps of transboundary data for SSF and RF in the CSs in relation to a regional perspective in the Mediterranean and Black Sea") reflect the situation in your Member state? If not please explain. Q18. Are the protocols and guidelines provided in Deliverable 5.2 of the STREAM project ("Guidelines on the best practice methodologies for sampling, processing, analysing and managing biological and spatial data on SSF and RF") adequate to implement regional plans for SSF and RF? If not, please specify.

Q19. Could you please identify current and potential future barriers for the implementation of regional plans for RF in your region?

Q20. Which training/coordination activities are in your views needed to support the implementation of RWP on RF?



# ANNEX 6 STREAMLINE GRANT QUESTIONNAIRE FOR WORKPACKAGE 1 GSA 29 (Black Sea) Background

- One of the primary purposes of the RCGs is to prepare <u>regional work plans</u>, which should include sampling designs/plans, procedures, methods, quality assurance and quality control for collecting and processing data, and conditions for the delivery of data.
- To support the process for the establishment of RCGs and to provide support to their work, DG MARE launched <u>calls for proposals</u> in the years 2014 and 2016. In the case of the Mediterranean and Black Sea the selected grants (MARE/2014/19 Med&BS project and STREAM) tackled the very relevant use of exploring the scope for establishing regional cooperation in DCF activities.
- For data on <u>commercial fisheries</u>, these grants identified a list of stocks/fisheries/métiers across the Med and BS regions, presenting a wide scope for regional sampling and on that basis prepared proposals for establishing RSPs in different GSAs and métiers.
- For data on <u>impact of fisheries on the ecosystem</u>, they designed in both areas stomach sampling programme for several species as well as a sampling programme for by-catch of vulnerable species and identified relevant case studies.
- For <u>small scale fisheries</u> (SSF) and <u>recreational fisheries</u> (RF) STREAM explored the current knowledge and provided guidelines for sampling, processing, analyzing and managing catch, biological and spatial-temporal data in SSF and RF.
- In parallel with the work developed under these grants, several Member states implemented <u>pilot studies</u> under the umbrella of the DCF. These pilot studies addressed specifically recreational fisheries, stomach content analysis and incidental catches of vulnerable species and have been implemented or are being implemented by most concerned MS.
- For <u>recreational fisheries</u>, RCG 2019 recommended that a workshop be held to assess the outcomes of the pilot studies and use them in order to generate plans for regular data collection as well as to identify survey methods and data to be collected and adapted to the specific situation of each MS, on the basis of end user's needs.
- For <u>stomach content analysis</u> the sampling and analysis protocols provided by MARE/2014/19 Med&BS project and STREAM should represent the basis for designing and implementing the data collection and analysis of stomach contents. RCG recommended that pilot studies on the species proposed by STREAM should be implemented under the Work Plans.
- You can access STREAM (MARE/2016/22) and MARE/2014/19 Med&BS final reports and deliverables at this link: <u>https://datacollection.jrc.ec.europa.eu/docs/regional-grants</u>.

# State of play of Regional Plans in Med&BS

- The outputs of the grants and pilot studies were made available to the RCG Med&BS, and presented and discussed at the RCG meetings.
- At this stage, despite some common parts of national work plans have been elaborated and currently exist, discussions so far in the RCG Med&BS did not go sufficiently beyond the national perspectives to allow achieving concrete, coordinated regional approaches and implementation thereof.
- As a consequence, the RCG Med&BS has not come forward to date with proposals for regional work plans in the Mediterranean and Black Sea for approval by the Commission.
- Regarding pilot projects, their implementation throughout Member states has not been homogeneous and some differences among methodological approaches have been outlined

(e.g. not use of tools developed under MARE/2014/19 Med&BS project and STREAM for stomach content analysis).

- Against this background there is a need to identify which barriers have prevented the development of regional work plans, including existing information gaps.
- This requires the screening of the readiness of the basic requisites that are considered to cope with the different recommendations and suggestions from the previous grants, from the pilot projects and from the RCG Med&BS outcomes.

#### Purpose

The current questionnaire was drafted under the STREAMLINE project ("Streamlining the establishment of regional work plans in the Mediterranean and Black Sea") granted under the EU Call for Proposal MARE/2020/08 (Strengthening regional cooperation in the field of data collection). This questionnaire is addressed to relevant stakeholders and scientists involved in the Fisheries Data Collection in order to establish *in fine* a "map" of what exists, what are the best elements and approaches already developed, which barriers have been identified that could prevent the development of regional work plans and what additional information is still necessary to be able to develop regional sampling plans.



#### **Commercial fisheries**

Rationale: In previous grants, a proposal for a sampling plan for commercial fisheries of <u>Mullus</u> <u>barbatus in GSA 29</u> was selected as a priority case study. Optimal sampling sizes and precision levels for the relevant species/GSAs were estimated according to different methodological approaches.

Q1. Does your Member state consider useful having a regional sampling plan on commercial fisheries and, if so, on which species/GSAs?

Q2. <u>Biological and fishing activity information</u>: is the relevant information currently available for the concerned métiers/species? Please provide a list of the metadata available for these métiers/species/GSAs.

Q3. <u>Length sampling</u>: Do you consider that the outcomes of the scenarios performed in STREAM for each species and GSA are sufficiently robust?

Q4. Could you please identify current and potential future <u>barriers</u> for the implementation of a regional work plan for these stocks?

Q5. Which <u>additional biological and fishing activity information</u> do you consider necessary for the implementation of the proposed sampling plan (e.g., data by haul, fecundity?)

Q6. Which <u>training/coordination activities</u> on fishing activity and biological sampling/analysis are in your views needed to support the implementation of the regional work plan?

Q7. Have the modifications proposed in sampling effort a strong impact in <u>budgetary</u> terms?



#### Stomach contents

**<u>Rationale</u>**In previous grants, three species *Psetta maxima, Sprattus sprattus and Trachurus mediterraneus* were considered as candidates for stomach contents sampling in your region. In this regard, a detailed proposal for sampling was designed including identification of length classes and number of stomachs to be collected/analysed per length class/quarter/GSA for commercial fisheries and for length class/GSA for surveys at sea.

Q8. Do you consider the <u>selected species</u> as the most appropriate for the purpose of regional sampling? There are other species that could have been selected?

Q9. Has your MS performed any pilot study on this particular topic? Please provide a brief summary of the outcomes.

Q10. Do you consider that the proposed number of stomachs to be analysed is realistic and feasible? If not please specify.

Q11. Is the proposed plan cost-efficient in your opinion? If not please specify

Q12. Are the protocols, tools and guidelines for sampling, processing and analyzing the stomach contents provided in deliverable 3.3 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q13. Could you please identify current and potential future barriers for the implementation of the plan?

Q14. Which training/coordination activities are in your views needed to support the implementation of a Regional Sampling Plan on fish stomach contents?



#### Incidental catches/by-catches

**Rationale** In previous grants, the métier targeting *Rapana venosa* in GSA 29 has been identified as the appropriate case study for monitoring of the by-catch of vulnerable species. Combining information from specific logbooks to be filled by fishermen together with information from observers on board is proposed as the appropriate methodological approach.

Q15. Do you consider that the proposed métier is the most appropriate for the objective of monitoring by-catch of vulnerable species? There are other métiers that could have been selected?

Q16. Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q17. Do you consider that the proposed number of fishing days to be monitored is realistic and feasible? If not please specify.

Q18. Are the protocols, tools and guidelines for monitoring incidental by catch and processing the collected data provided in Deliverable 3.2 of MARE/2014/19 Med&BS project adequate to implement the proposed plan? If not please specify.

Q19. Could you please identify current and potential future barriers for the implementation of the plan?

Q20. Which training/coordination activities are in your views needed to support the implementation of a regional work plan on the monitoring of incidental by catch of vulnerable species?



#### **Recreational fisheries**

**Rationale** Regarding recreational fisheries, it appears to be a limited and fragmented availability of information which make the adoption of RSP unviable in the short term. In this regard, progress achieved in previous grants remain limited to methodological approaches (notably effort mapping and guidelines for data collection) and the implementation of pilot studies was deemed as more appropriate and precautionary as a first step towards the design and further implementation of RSP.

Q21.Has your MS performed any pilot study on this particular topic? Please provide information on the outcomes.

Q22. Can you please summarize the spatial and temporal availability of information on recreational fisheries in your region and the suitability for establishing RWP?

Q23. Do the outcomes of Deliverable 5.1 of the STREAM project ("Report on the availability, quality and existing gaps of transboundary data for SSF and RF in the CSs in relation to a regional perspective in the Mediterranean and Black Sea") reflect the situation in your Member state? If not please explain. Q24. Are the protocols and guidelines provided in Deliverable 5.2 of the STREAM project ("Guidelines on the best practice methodologies for sampling, processing, analysing and managing biological and spatial data on SSF and RF") adequate to implement regional plans for SSF and RF? If not, please specify.

Q25. Could you please identify current and potential future barriers for the implementation of regional plans for RF in your region?

Q26. Which training/coordination activities are in your views needed to support the implementation of RWP on RF?

