



Food and Agriculture
Organization of the
United Nations



General Fisheries Commission
for the Mediterranean
Commission générale des pêches
pour la Méditerranée

Overview of the current GFCM recommendations and main findings of the GFCM Sub Regional Committee Central Mediterranean (SRC-CM)

GFCM Secretariat

Focus Group on the Strait
of Sicily and the Ionian Sea

MEDAC

6 May 2021

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General structure:

- GFCM recommendations
 - Recommendation text in a nutshell
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Contents:

- GFCM recommendations
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 - Demersal fisheries
 - Red coral
 - Cnidarian/coral communities
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Decisions adopted in the 43rd session of the GFCM relevant to central Mediterranean

- 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.
- Recommendation GFCM/43/2019/4 on a management plan for the **sustainable exploitation of red coral** in the Mediterranean Sea
- Recommendation GFCM/43/2019/6 on management measures for **sustainable trawl fisheries targeting giant red shrimp and blue and red shrimp in the Strait of Sicily** (geographical subareas 12, 13, 14, 15 and 16)
- Resolution GFCM/43/2019/2 on enhancing the **conservation of cetaceans** in the GFCM area of application
- Resolution GFCM/43/2019/4 on the **ban of single-use plastics** in all GFCM meetings
- 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
- Resolution GFCM/43/2019/7 amending Resolution GFCM/41/2017/3 on the **reactivation of the Working Group on Fishing Technology**

Decisions adopted in the 42nd session of the GFCM relevant to central Mediterranean

- Recommendation GFCM/42/2018/1 on a **multiannual management plan for European eel** in the Mediterranean Sea (including the development of a Research programme)
- 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 and 21)
- 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/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

Objectives of the management measures



Improve knowledge on the characteristics of FADs, buoys, FAD fishing and their related impacts on common dolphinfish and on associated and non-targeted species

Manage the deployment and recovery of FADs and their potential loss;

Reduce and limit the impacts of FADs and FAD fishing on the ecosystem including by acting on the different components of F (e.g. by limiting the number of FADs deployed)

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



Transitional measures – applicable to international waters in 2020 and 2021

Fishing effort (# vessels) shall be maintained at the current level

CPCs considering starting a **new fishery** targeting common dolphinfish using FADs shall **submit to the GFCM** their **national measures** adopted for the SAC to examine

CPCs shall establish a **code of conduct** prior to the start of the fishing season in order to ensure the implementation of the provisions of this recommendation

FAD measures: valid fishing authorization (31 July), composition, location, maintenance and replacement; FADs identification and marking; recording of activities

A **GFCM WG** and a **research programme** shall be established in [2020] in order to develop a **multiannual management plan for common dolphinfish fisheries** that comprises measures for the management of FADs and assesses the **status of the stock**

On the basis of the results of the Research Programme and SAC advice, the GFCM shall, at its **46th Session [expected 2023]** at the latest, adopt a **long-term multiannual management plan**

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



Research programme and scientific monitoring

Competent national authorities may authorize **scientific surveys or pilot programmes** with a view to assessing new common dolphinfish fisheries using FAD and CPCs shall ensure adequate **monitoring** of the biological and environmental **impacts of FADs** exploiting dolphinfish

[From 2020] the **SAC** shall assess on an annual basis on **the impact of FADs** on restoring and maintaining the common dolphinfish stock over **MSY**

CPCs and the SAC shall **facilitate the collation of existing relevant data and the collection of additional relevant data** (including research survey data) and organize workshops to this end. For this purpose, the SAC shall promote **scientific cooperation** and a harmonised approach amongst all CPC

The **research programme** shall be finalized *[by 2022]* and include the **assessment of the stock** and of the **fishing effort** exerted by the fisheries concerned. It shall also **aim at developing conservation measures**, including the minimum depth of deployment of FADs and their number, taking into account the characteristics of different areas

Common dolphinfish fisheries in the Mediterranean Sea

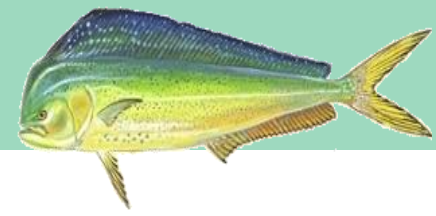


An **assessment for common dolphinfish, *Coryphaena hippurus***, in the western and central Mediterranean was presented at the WGSASP (**Multiannual-Multifleet-Generalized Depletion Model (MAGD)**): it was deemed **preliminary** and the WG commended the efforts made towards data collection, collation, analysis and modelling for this species using a multiannual general depletion model.

In light of the data requirements for improving the assessment towards a benchmark (e.g. biological data from Italy, effort data from Tunisia) and acknowledging the importance of addressing transitional management measures, the SRC-CM proposed:

- to **finalise the assessment** of stock status by the end of 2021
- to consider **additional precautionary measures**
- to perform an **assessment of alternative management measures** in 2022
- to implement a **research programme**

Common dolphinfish fisheries in the Mediterranean Sea



Additional **precautionary measures** to be considered:

- Output management (catch **quotas**)
- Technical gear measures (e.g. **minimum mesh size** and twine width of the surrounding net) including additional FAD characteristics
- Minimum landing size (**MCRS**)
- Revision of the **fishing season**
- **Maximum number and depth** of FAD deployments

Common dolphinfish fisheries in the Mediterranean Sea



To perform an **assessment of alternative management measures** in 2022, according to the following ToRs, including a thorough **consultation with relevant stakeholders**:

1. Make use of **all available data** (catches, effort, socio-economics, etc.) in all countries
2. Review all **existing and potential management measures**
3. Perform an **assessment of the alternative outcomes of different management measures**. The methodology will depend on the existence or not of a validated stock assessment as follows:
 - **Existing validated quantitative stock assessment:** under the hat of the GFCM Working Group on the Assessment of Alternative Management Measures (**WGMSE**), based on the management scenarios and reference points agreed in the context of the GFCM WGSAs, assess the potential effects on stocks and fleets of the implementation of alternative scenarios
 - **Lack of a validated quantitative stock assessment:** under the hat of the GFCM Workshops on the implementation of management measures in selected case studies in the Mediterranean and Black Sea (**WKMEASURES**), qualitatively assess the potential effectiveness of existing and potential management measures on stocks and fleets based on data-limited methodologies (e.g. raking methods based on technical experience)

ACTION 1 – ESTABLISHING A FRAMEWORK FOR STOCK ASSESSMENT (I/II)

Will be initiated in 2021 with the support of FAO CopeMed II and MedSudMed Projects



1. Improve data on

1.1. Effort: data are available for Italy, Malta and Spain FADs and Longlines fleets, Tunisian effort data are presently lacking

1.2. Mean monthly individual length: available only in occasional years resulting from pilot studies

1.3. Catches from Recreational Fisheries: if it is above 5% of the total catch they should be included in the model

1.4. Migration: it is relevant in this species as the adults are not found in winter months. If possible, tagging programs would improve the existing knowledge about the migratory patterns of this species



ACTION 1 – ESTABLISHING A FRAMEWORK FOR STOCK ASSESSMENT (II/II)

Will be initiated in 2021 with the support of FAO CopeMed II and MedSudMed Projects

2. Improve Modelling aspects

2.1. Explore the use of **abundance estimates** from the **longline** fleet in conjunction with the **maturity ogive** and **length frequency** data to estimate **spawning abundance**

2.2. Explore the **stock-recruitment relationship** by connecting spawning biomass in year y with recruitment estimates in year $y+1$ from generalized depletion models.

2.3. Explore **surplus production models** and the **stock-recruitment relationship** to obtain **Reference Points** connected to biomass and recruitment.



ACTION 2 – ASSESSMENT OF FAD IMPACTS AND POTENTIAL MANAGEMENT SCENARIOS (I/II)

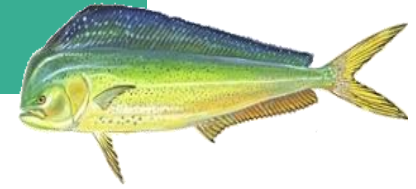
Developed throughout 2022 coordinated by the GFCM

2.1. Compilation of relevant information on the description and potential **impact (both biological and environmental) of FADs** in the different countries involved in the fishery

2.2. Collection of **socio-economic data** for relevant countries and fisheries

2.3. Assess the potential impact of alternative management scenarios both on the status of resources and on the environment. A session will be organised within the framework of the WKMEASURES to undertake the following tasks

- Collation of the current management measures in place at national level, including on the management of FADs
- Identification, discussion and agreement of the management scenarios to be tested in collaboration with scientists, administrations and stakeholders
- Development and running of data limited and/or qualitative assessments of the impact of the agreed management scenarios



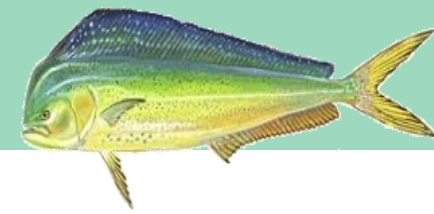
ACTION 3 – COORDINATION, NETWORKING AND CAPACITY BUILDING

Developed throughout 2021-2022 coordinated by the GFCM with the contribution during 2021 from the relevant FAO Regional projects

This action has the objectives to ensure:

- Coordination and networking
- Preparation and organization of meetings related to Action 1 and 2
- Engagement with extra-regional experts and organizations working on dolphinfish
- Supervision of scientific work
- Training and capacity-building

Common dolphinfish fisheries in the Mediterranean Sea



SRC-CM Workplan

- Finalize the stock assessment in 2021
- Compile all available data on dolphinfish (catches, effort, socio-economics, etc.) in all countries
- Perform an assessment of alternative management measures in 2022 according to the general Terms of Reference
- Perform a socio-economic survey in Tunisia and Libya in 2022 and compile socio-economic data for EU countries
- Implement a research programme

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 and 21)

Provide advice on stock status from 2019. In the **absence of such advice**: appropriate management measures decided according to the **precautionary approach**

Each CPC shall set-up adequate mechanisms for the recording of each fishing vessel in a **national fleet register, for the recording of vessel catches and fishing effort via the logbook and remote sensing** as well as for the monitoring of fishing vessel activities and landings via **catch and effort sampling surveys**

Fleet development plans for the SAC to assess *[template proposed in 2019]*

CPCs shall facilitate collation of existing relevant data and the collection of additional relevant data

Without BRPs, $F@MSY$ shall be attained while **maintaining the fleet capacity or effort at the levels authorized and exerted during the years 2014–2017**

Active vessels >10m LOA: **equipped with VMS (or other)**

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 and 21)

2019

June 2019: communication of **authorized vessels and their historic level of fishing effort**

from 2019: **advice on stock status**

2020 [2021]

2020 [2021] SAC: **evaluation of the measures** already applied

30d after 22nd SAC [2021]: **GFCM working group** to develop management measures taking into consideration the efforts made by CPCs, historical catches and socio-economic considerations

44th GFCM [2021]: adoption of **long-term management measures**

By 31/12/2020: **map of the fishing grounds (VMS)**

Annual management plan for sustainable trawl and red shrimp in the Ionian Sea (geographical), 20 and 21)

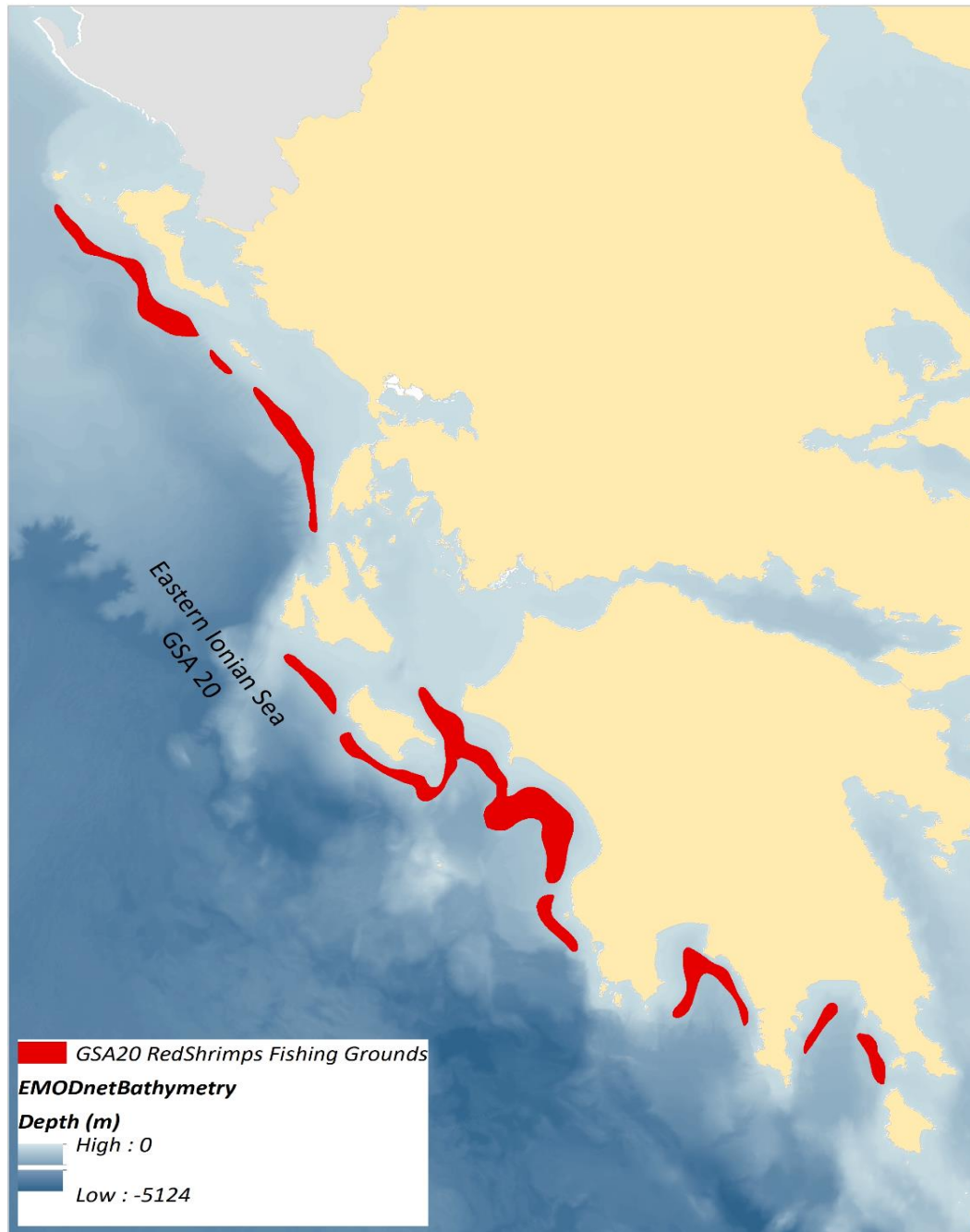
2020 [2021]

2020 [2021] SAC: **evaluation of the measures already applied**

30d after 22nd SAC [2021]: **GFCM working group to develop management measures taking into consideration the efforts made by CPCs, historical catches and socio-economic considerations**

44th GFCM [2021]: **adoption of long-term management measures**

By 31/12/2020: **map of the fishing grounds (VMS)**



Recommendation GFCM/43/2019/6 on management measures for sustainable trawl fisheries targeting **giant red shrimp and blue and red shrimp** in the Strait of Sicily (geographical subareas 12, 13, 14, 15 and 16)

Scientific monitoring



- CPCs shall ensure annually an adequate **scientific monitoring of the status** of the key species in the Strait of Sicily
- The SAC shall **assess the biological, economic and social implications of implementing several management scenarios** with the objective of restoring and maintaining the species population above levels that can produce MSY



Fleet management measures

- **Vessels authorized to fish for the key species in the Strait of Sicily shall be listed** by the CPC whose flag they are flying → to GFCM Sec by **30 June each year**
- Authorized vessels shall provide national authorities a **detailed report of their fishing activities, including as minimum requirements: operating days, operating area and total catch of key species**. This information shall be transmitted to the GFCM Secretariat at least on a yearly basis
- CPCs **may designate additional spatio-temporal restrictions** to those already established where fishing activities may be banned or restricted in order to protect aggregation areas of juveniles of the key species

Recommendation GFCM/43/2019/6 on management measures for sustainable trawl fisheries targeting **giant red shrimp and blue and red shrimp** in the Strait of Sicily (geographical subareas 12, 13, 14, 15 and 16)

Management of fishing effort



- CPCs shall ensure that their **fleet capacity or fishing effort is maintained at the levels authorized and implemented during the recent years for the exploitation in the Strait of Sicily** of the key species
- Each CPC shall ensure the **set-up of adequate mechanisms for the recording of each fishing vessel in a national fleet register** and for the **recording of vessel catches and fishing effort** via the logbook



Final provisions

- The SAC shall provide, on an annual basis as from 2020, **advice on the status of the key species in the Strait of Sicily** including specific objectives to maintain fishing mortality within agreed precautionary fishing mortality reference points and to maintain or restore the stocks of the key species at levels that can produce MSY
- **In 2022**, the SAC shall **provide scientific advice in order to enable the GFCM to establish a multiannual management plan** for the key species

Deepwater red shrimp fisheries in the eastern-central Mediterranean

Stock assessment



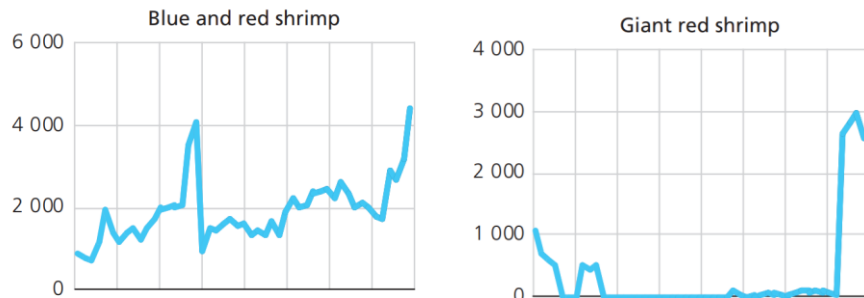
Stock assessment available for ARS in GSA 18-19 presented at the 2019 and 2021 WGSAD;

No other assessments performed

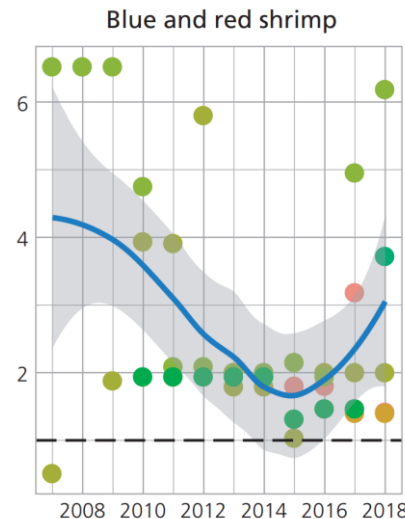
GSA	Species	Method	Current Levels	Reference Points	Quantitative Status		Stock Status	Scientific Advice	WG Comments
					2021	2019			
18-19	<i>A. foliacea</i>	a4a	$F_c = 1.09$, $B_c = 82$	$F_{0.1} = 1$	$F/F_{ref} = 1.09 \downarrow$	1.1	In overexploitation with relative low biomass	Reduce fishing mortality	Revised assessment, changing method

SOMFi 2020

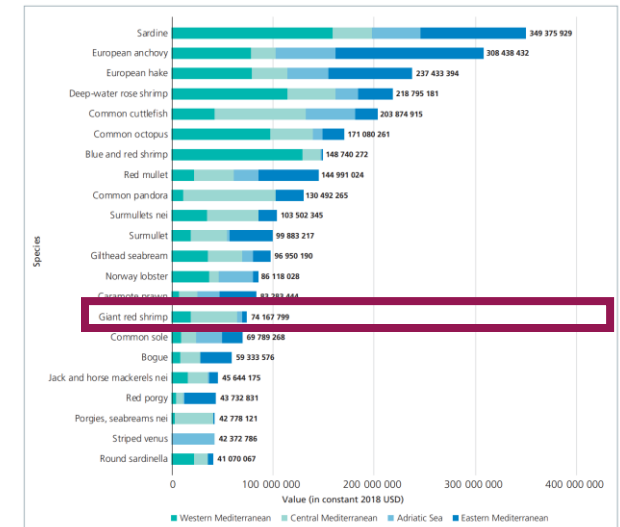
Increasing trend in landings of both species in the Med



Increasing exploitation ratio for blue and red shrimp at Med level



High value of giant red shrimp fishery particularly in the CM

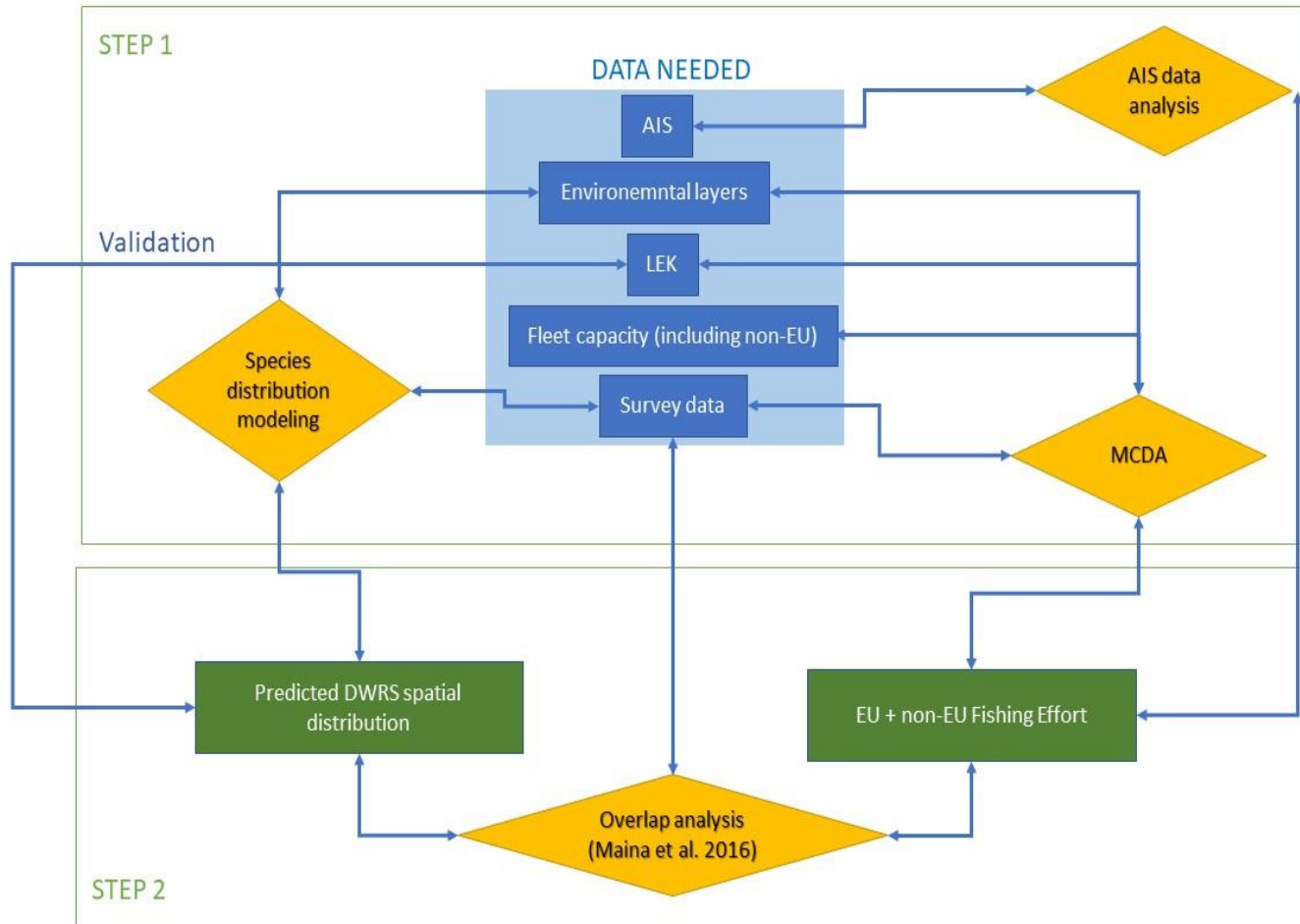


Deepwater red shrimp fisheries in the eastern-central Mediterranean



Fishing grounds and spatial analyses

The group agreed on a workplan putting together a system to understand fishing effort for DWRS and advance towards overlaying these data on the population data using the GFCM grid.



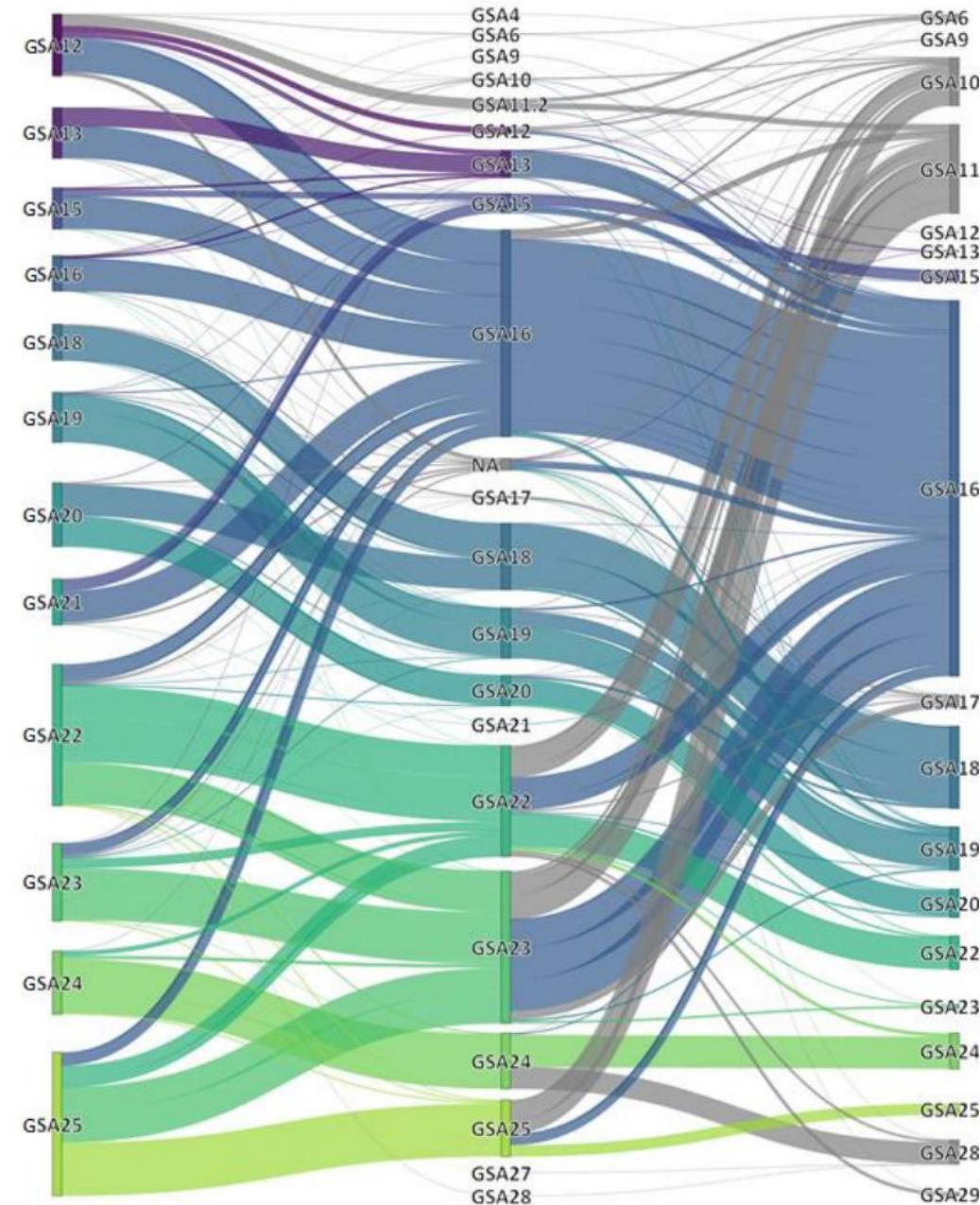
WHAT	WHO	RESOURCES NEEDED	WHEN
1. Fishing grounds + survey locations	Lorenzo D'Andrea		✓ DONE
2. Fishing grounds + AIS (2015-2018)	Nora Tasseti/Carmen Ferrá Vega/Jacopo Pulcinella/Enrico Armelloni/Giuseppe Scarcella	Additional Info NEEDS: • Data from 2019 onwards	✓ DONE + more
3. MCDA (GSAs 24, 25, 26)	Irida Maina	Additional Info NEEDS: • Fishing effort from fleets without AIS • Species distribution information	✓ DONE + more
4. Species distribution modelling	Lorenzo D'Andrea Tommaso Russo	• Survey data: abundance/biomass at length	! TO DO
5. Overlap Analysis	ALL	• Above results • LEK	! TO DO

Deepwater red shrimp fisheries in the eastern-central Mediterranean



2. Fishing grounds + AIS

- Patterns of fishing effort and related spatial descriptors **highlight seasonality in the data and narrow and precise fishing grounds** that are covered repetitively by trawl fisheries
- Deep-water fishing activity was never detected within GSAs 14, 26 and 27
- Deep-water fishing activity is mainly carried out by Italian vessels in distant GSAs and **have limited fishing footprint**, especially in the eastern side of the Mediterranean basin
- Deep fishing grounds in the Strait of Sicily channel are fully exploited, particularly in GSAs 13, 15 and 16; in the eastern Med it concentrates in the southern part of GSA 22 and north of the Crete island (GSA 23); in the Ionian Sea (GSA 18 and GSA 19) deep-water surface is very limited and bottom trawling is concentrated in very narrow fishing grounds

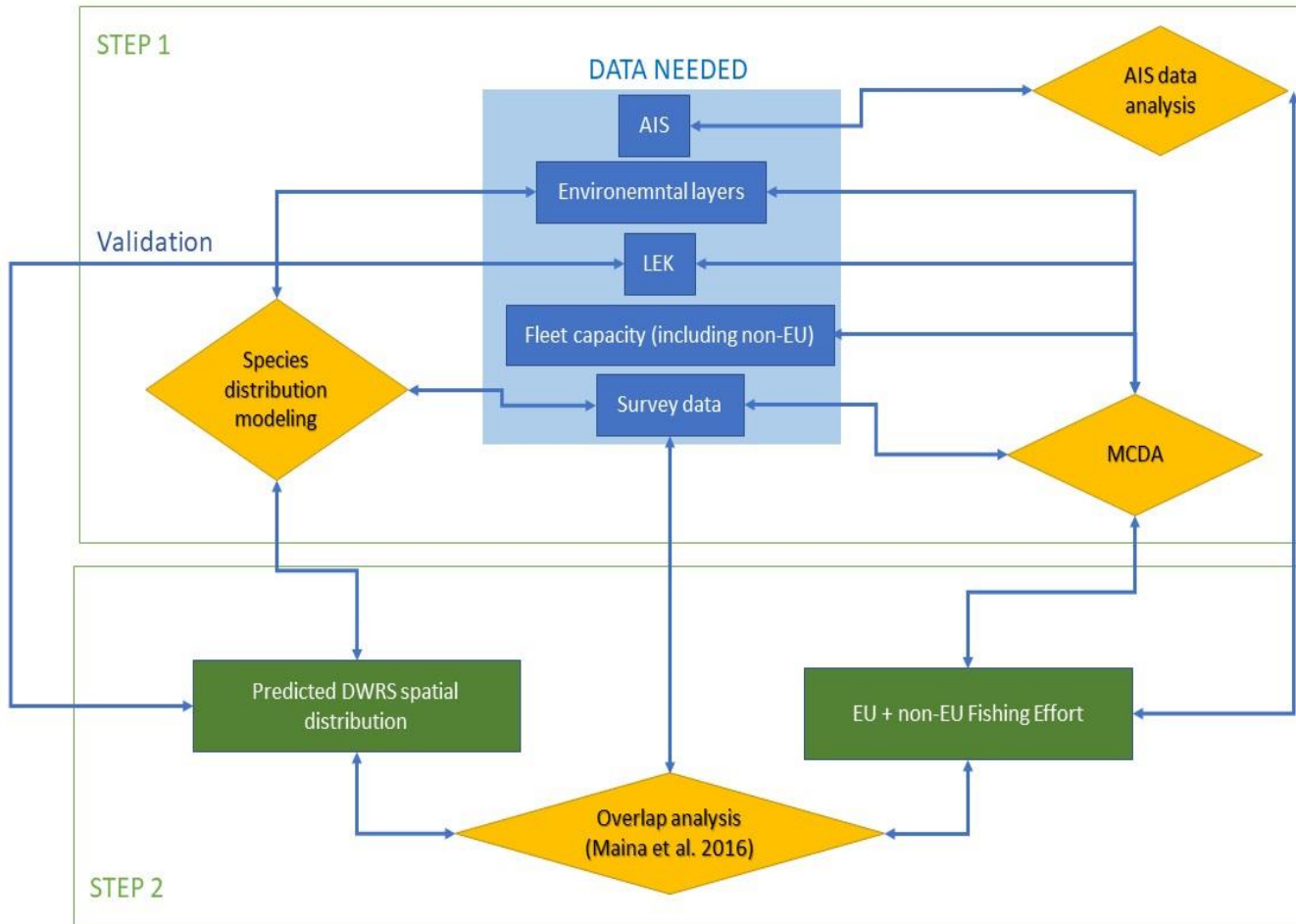


Deepwater red shrimp fisheries in the eastern-central Mediterranean



2. Fishing grounds and spatial analyses

The SRC-CM further stressed the importance of finalising the work towards the determination of fishing grounds according to the agreed workplan, thus using all available data, including from Libya



WHAT	WHO	RESOURCES NEEDED	WHEN
1. Fishing grounds + survey locations	Lorenzo D'Andrea		✓ DONE
2. Fishing grounds + AIS (2015-2018)	Nora Tassetti/Carmen Ferrá Vega/Jacopo Pulcinella/Enrico Armelloni/Giuseppe Scarcella	Additional Info NEEDS: • Data from 2019 onwards	✓ DONE + more
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5. Overlap Analysis	ALL	• Above results • LEK	! TO DO

4. Species distribution modelling

All survey data available are needed:

- Biomass
- Abundance
- By length...

Deepwater red shrimp fisheries in the eastern-central Mediterranean

The SRC-CM...



- Despite the large amount of work done to collate relevant data, considering the fact that available information and assessments point to a possible situation of overexploitation of central Mediterranean deepwater red shrimp stocks, the SRC-CM underlined the **importance of acting swiftly to implement the measures and requirements** contained in existing recommendations for these fisheries in the Strait of Sicily and the Ionian Sea
- In particular – notwithstanding the difficulties related to the quantification of DWRS catches according to their GSA of origin, which should be resolved as soon as possible – the SRC underlined the **urgency of updating the assessment of the status of the stocks** of DWRS in the central and eastern Mediterranean GSAs. These assessments – to be performed by 2021 according to a step-by-step approach outlined in the workplan – were **needed to enable a quantitative assessment of alternative management measures** before the SAC in 2022 and ultimately inform the adoption of a long-term adaptive management plan for this fishery

Deepwater red shrimp fisheries in the eastern-central Mediterranean



The SRC-CM...

- The SRC-CM also recalled the **importance of implementing precautionary measures** even in the absence of comprehensive quantitative advice stock status and proposed potential additional measures

Additional precautionary measures to be considered:

- Report **catches by GSA of origin**
- **Freeze fishing effort/capacity**
- **Minimum landing size** (based on size at first maturity), at least for *Aristeus antennatus*
- Minimum **mesh size** and **twine material** for the trawl cod-end (advice from WGFIT: 40mm square mesh in the codend)
- **Technical gear measures** that minimize the possibility of catching individuals smaller than the minimum landing size
- **Spatial protection** of nursery grounds for *Aristaeomorpha foliacea*
- Establishment of a **fishing season**

Deepwater red shrimp fisheries in the eastern-central Mediterranean



SRC-CM Workplan

- **Assess the status** of deepwater red shrimp stocks in 2021 according to the workplan
- Finalize the workplan for the **determination of fishing grounds** using all data available, including from Libya
- Provide the **technical information** for the **adoption of additional management measures**
- Perform an **assessment of alternative management scenarios** according to the general Terms of Reference
- **Finalize the technical paper** “Synthesis on the biology, ecology and fisheries of deepwater red shrimps *Aristaeomorpha foliacea* and *Aristeus antennatus* in the central-eastern Mediterranean (GSAs 12 – 16, 18 – 27)” by the end of 2021

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

Additions to the previous recommendations and pending requirements:

CPC shall communicate annually the specific modalities to control MCRS – including landing obligation – aiming at avoiding discards

To define **additional appropriate spatio-temporal restrictions**, CPCs shall communicate, not later than 30 June 2019, the spatial restrictions applied to protect spawning and nursery areas for demersal stocks

The SAC shall identify **additional nursery areas of European hake** in the entire Strait of Sicily

The SAC shall also identify **areas where discards** of European hake and/or deep-sea rose shrimp below the MCRS or juveniles are high

The SAC shall be invited to formulate advice aiming at improving the efficiency of current measures (e.g. capacity reduction and effort restrictions, including closures)

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

CPCs shall **adopt fisheries management measures or national management plans** and notify the GFCM Secretariat, from 31 January 2019

The SAC shall **assess the biological, economic and social implications** of implementing several management

The SAC shall **advise on the most appropriate minimum and/or maximum landing sizes for elasmobranchs species** affected by the fisheries exploiting European hake and/or deep-water rose shrimp in the Strait of Sicily

The SAC shall advise on the **most appropriate technical measures to improve the selectivity of bottom trawlers** targeting European hake and/or deep-water rose shrimp stocks

The SAC shall **identify where appropriate nursery areas** beyond 200 metres depths in GSA 14 (Gulf of Gabès).



Demersal fisheries in the Strait of Sicily

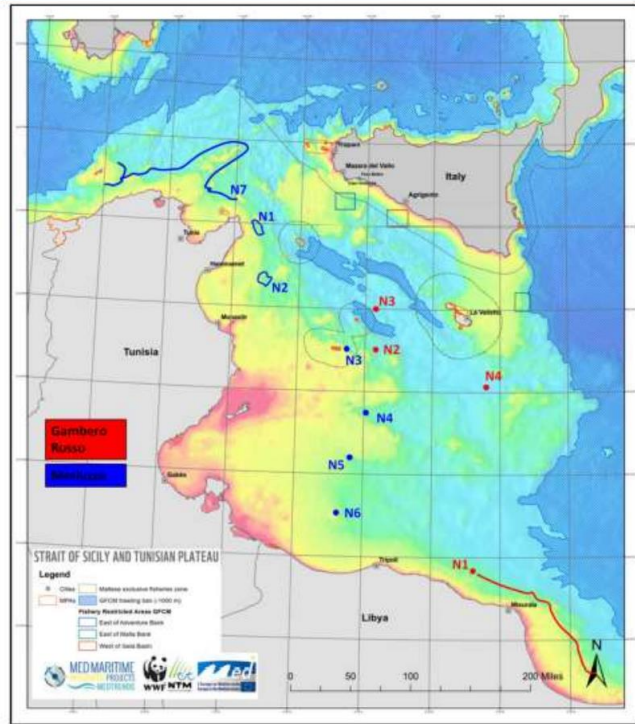


Except for red mullet in GSA 15, all demersal stocks in the central Mediterranean were found to be in overexploitation with varying levels of biomass

GSA	Species	Method	Current Levels	Reference Points	Quantitative Status		Stock Status	Scientific Advice	WG Comments
					2021	2019			
12-16	<i>Merluccius merluccius</i>	ss3	Fc = 0.5, Bc = 4744	Fmsy = 0.29, Bmsy = 7021	F/Fref = 1.72 ↑ B/Btarget = 0.68 ↓	1.65 0.75	In overexploitation and overexploited	Reduce fishing mortality	Update of benchmark assessment
19	<i>Merluccius merluccius</i>	a4a	Fc = 0.33, Bc = 1193	F0.1 = 0.14	F/Ftarget = 2.32 ↓	2.4	In overexploitation with relatively high biomass	Reduce F mortality. STF available	Update of benchmark assessment - revised model
20	<i>Merluccius merluccius</i>	a4a	Fc = 0.37, Bc = 2643	F0.1 = 0.202	F/Fref = 1.83	<i>uncertain</i>	In overexploitation, with relative high biomass	Reduce fishing mortality. STF available	Revised assessment from surplus production model to SCAA
12-14	<i>Mullus barbatus</i>	XSA	Fc = 1.32, Bc = 2685	F0.1 = 0.466	F/Fref = 2.84 ↑	2.17	In overexploitation with relative low biomass	Reduce fishing mortality; STF available	Updated assessment
15	<i>Mullus barbatus</i>	XSA	Fc = 0.34	F0.1 = 0.402	F/Fref = 0.84	NA	Sustainably exploited, with relative low biomass	Not increase fishing mortality	Update of benchmark assessment
16	<i>Mullus barbatus</i>	XSA	Fc = 0.47, Bc = 2338	F0.1 = 0.42	F/Fref = 1.12 ↑	0.76	In overexploitation with relative intermediate biomass	Reduce fishing mortality	Update of benchmark assessment
19	<i>Mullus barbatus</i>	XSA	Fc = 0.6, Bc = 576	F0.1 = 0.4	F/Fref = 1.51 ↑	1.25	In overexploitation, with intermediate biomass	Reduce fishing mortality	Update benchmark
20	<i>Mullus barbatus</i>	a4a	Fc = 0.33, Bc = 899	F0.1 = 0.28	F/Fref = 1.19	NA	In overexploitation, with relatively high biomass	Reduce fishing mortality. STF available	Revised assessment from surplus production model to SCAA
12-16	<i>Parapenaeus longirostris</i>	XSA	Fc = 1.23	F0.1 = 0.84	F/Fref = 1.46 ↓	1.52	In overexploitation with relative low biomass	Reduce fishing mortality	Update assessment
18-19	<i>A. foliacea</i>	a4a	Fc = 1.09, Bc = 82	F0.1 = 1	F/Fref = 1.09 ↓	1.1	In overexploitation with relative low biomass	Reduce fishing mortality	Revised assessment, changing method

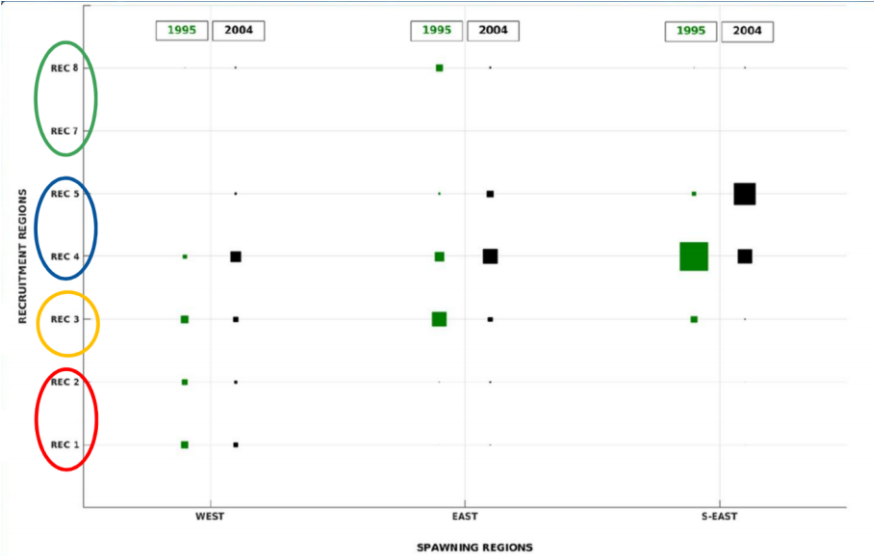
Demersal fisheries in the Strait of Sicily

Nurseries of Hake in the southern SoS based on LEK



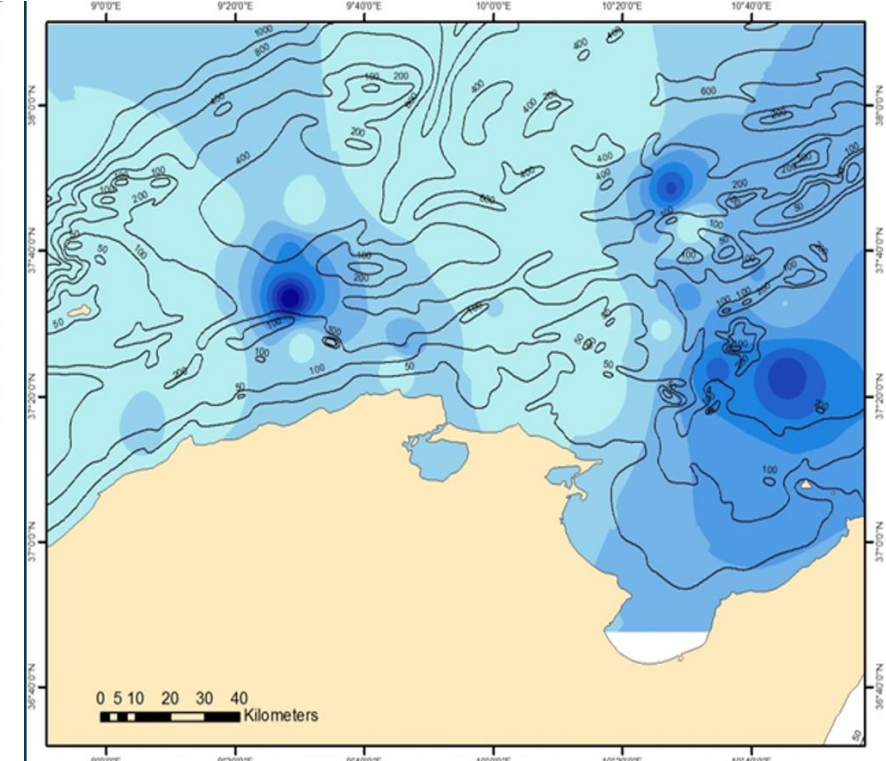
Fiorentino & Garofalo, 2021 SRC-CM

Connectivity studies in the S, SE, E and W SoS



Weak connectivity: between N spawning and S nursery areas
High connectivity: between W spawning and E nursery areas

MEDITS survey data (GSA 12): juvenile hake abundance



Ben Meriem et al., 2021 SRC-CM

The SRC-CM...

The comparison of the European hake spatial distributions emerging from the surveys (e.g. in Tunisia) with those emerging from other methods (e.g. LEK and connectivity) will, over a time-span of three years, allow the **identification of persistent nursery areas** enabling their protection through the establishment of further GFCM Fisheries Restricted Areas

Demersal fisheries in the Strait of Sicily

The SRC-CM...

Considering the high exploitation rates suffered by European hake in the Mediterranean as a whole and the worsening situation in the central subregion in particular, and in light of the fact that the existing Recommendation 42/2018/5 will be coming to an end in 2021, the SRC-CM strongly recommended **extending the current management plan for another year + the adoption of a combination of additional different measures acting in synergy (e.g. an effort regime together with spatial management of effort and gear technical measures)**:

- Additional **FRAs** protecting nursery areas, in the southern Strait of Sicily (also based on the analysis of survey data)
- **Technical measures** to protect juveniles (advice from WGFiT: 40mm square mesh in the codend)
- Additional **measures to protect juveniles** such as real time closures
- Establishment of an **effort regime**
- Differentiated seasonal closures (by fishing-segment and area) to protect specific portions of the population (e.g. spawners in deepwater refugia in summer)

The SRC-CM also noted the importance to continue working towards assessing alternative management scenarios to inform a long-term management plan for this fishery

SRC-CM Workplan

- Compile a **short document to summarize, overlay and compare all available information on potential nursery areas**, including results of simulation studies, local ecological knowledge, and past and ongoing scientific surveys
- **Advise on additional potential FRAs** to protect nursery grounds, including on the basis of results from surveys in the southern Strait of Sicily
- Perform an **assessment of alternative management scenarios**
- Investigate the importance of the **contribution of deepwater gillnet and longline fisheries** to fishing mortality-at-age of the stock
- Continue supporting the **implementation of scientific surveys at sea** (i.e. demersal and acoustic-pelagic surveys) in Tunisia

WGFiT

- [...] it was agreed to explore the application of [innovative methods to tag fishing gear with electronic sensors able to gather accurate location and effort data used in Lebanon] in other areas of the region and for other fisheries, such as in the case of **FADs for dolphinfish fisheries**.
- [...] the WG proposed the development of a **large scale and multi-annual pilot study for bottom trawl fisheries exploiting demersal stocks in the Strait of Sicily** (GSA 12 to 16), in line with the request from Recommendation GFCM/42/2018/5. In order to further increase the study area, this pilot study should be harmonized and aligned with the work taking place in the western Mediterranean at EU-level

WGFiT: Pilot Project on improving the selectivity of trawl fisheries in the Strait of Sicily

AIMS

1. **Assess the effectiveness**, at subregional level, of **reducing the impact of bottom trawling on juveniles** by experimentally adopting two directly implementable selectivity measures in the trawl fishery for deep-water rose shrimp (*Parapenaeus longirostris*) and European hake (*Merluccius merluccius*) in the Strait of Sicily:
 - **fitting a 90° turned mesh (T90)** panel on the trawl net extension;
 - inserting a **selective grid** in the standard net extension
2. Ensure that the spatial coverage and significance of the foreseen results be maximized by planning the pilot in a manner to be in line with the selectivity work carried out elsewhere on similar fisheries and technical measures, e.g. in the Western Mediterranean.

Four steps:

Step 1: fisher and stakeholder involvement

Step 2: work at sea

Step 3: extending the coverage

Step 4: data analysis

Recommendation GFCM/43/2019/4 on a management plan for the sustainable exploitation of red coral in the Mediterranean Sea (I/IV) *(repealing all other recs. on red coral)*

Specific objectives

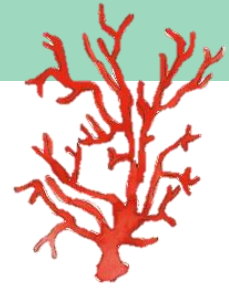
- apply the **precautionary approach** to red coral fisheries management
- **prevent overfishing** with a view to ensuring long-term yields while **maintaining** the red coral populations within **biologically sustainable levels**
- establish measures to **adjust exploitation rates and fishing effort** to sustainable levels
- **deter IUU** fishing activities



National management plan

- Where **no national management plan** for red coral is in place, **CPCs shall adopt one**

Recommendation GFCM/43/2019/4 on a management plan for the sustainable exploitation of red coral in the Mediterranean Sea (II/IV)



Conservation measures [...]

- only gear authorized for harvesting red coral colonies **is the hammer** used by an authorized fisher or fishing vessel using scuba diving equipment
- **prohibited to harvest** red coral colonies in **waters less than 50 metres** deep
- **Minimum conservation reference size** 7 millimetres (measured within one cm from the base of the colony)
- Only if a **national management plan is in force**, the concerned CPC may apply a maximum **tolerance of 10 percent in live** weight of colonies below the minimum conservation reference size (MCRS)
- During the transitional period (**2020–2023**), CPCs shall:
 - a) maintain their harvest of red coral at the average level over the period 2015–2017*
 - b) maintain the number of fishing authorizations for the exploitation of red coral at the level exerted in 2019 or over another period of three consecutive year after 2000*
- Harvest control rules defined; they shall trigger specific management actions according to the percentage of red coral colonies below the MCRS in the annual harvest of a given CPC, e.g. when the proportion of the **red coral colonies exceeds 25%** (trigger) of the total annual harvest **from a bank, the area shall be closed** and the GFCM Secretariat informed

Recommendation GFCM/43/2019/4 on a management plan for the sustainable exploitation of red coral in the Mediterranean Sea (II/IV)



Harvest Control Rules

Annex 1

Harvest control rules

Proportion of undersize colonies in the harvest = 0%	No specific management action
$0\% < \text{proportion of undersize colonies in the harvest} < 10\%$	If a national management plan is in place: no specific management action. If no plan: implement stricter control
$10\% < \text{proportion of undersize colonies in the harvest} < 25\%$ (= trigger)	Implement stricter control and survey the size structure of the population
Proportion of undersize colonies in the harvest $> 25\%$ (trigger)	Close the fishery in the area on precautionary grounds

Recommendation GFCM/43/2019/4 on a management plan for the sustainable exploitation of **red coral** in the Mediterranean Sea (III/IV)



Fleet management measures [...]

- CPCs shall maintain an **updated register of the fishing authorizations**
- CPCs shall take the necessary measures to **prohibit the catch** and retention on board, transshipment or landing of red coral **from recreational fisheries**

Control and enforcement [...]

- Each CPC shall **designate ports** in which the landing and transshipment of red coral harvest is authorized and communicate such list to the GFCM Secretariat
- Authorized fishers or the masters of the vessels authorized to harvest red coral have the obligation to **record their harvest daily** after each harvest operation (all red coral daily harvests in the logbook, irrespective of the live weight of the harvest)
- Each CPC shall establish a **risk-based control programme**, in particular to check the landing and logbook information
- It shall be prohibited to transship red coral at sea

Recommendation GFCM/43/2019/4 on a management plan for the sustainable exploitation of **red coral** in the Mediterranean Sea (IV/IV)

Traceability of red coral products [...]

- CPC shall take the necessary steps to implement a **Catch Documentation Scheme** for the purpose of **identifying the origin of red coral** harvested in the GFCM area of application according to the criteria provided in Annex 3 to the REC.
- For a transitional period of three years (2020–2022), CPCs may participate in the pilot phase of the CDS, where all the above traceability measures shall be fully implemented

Scientific information [...]

- The use of remotely operated vehicles (**ROVs**) shall be allowed until 31 December 2022 for scientific purposes only
- In 2020, the GFCM shall launch the **Research programme on red coral** that shall end in 2022
- It shall be strictly forbidden to commercialize red coral colonies harvested within the framework of such research programmes



Red coral in the Mediterranean Sea

Launched in October 2020 the **research programme on red coral** in the Mediterranean Sea (5 Actions)

- ✓ Surveys at sea (Action 1)
- ✓ Red coral certification scheme (Action 2, being launched)

Tunisia and **Greece** are among the partners; methodologies to collect data at sea being discussed with (online) roundtables of experts



The SRC-CM...

- With respect to the management of red coral fisheries in the Mediterranean and in particular to Recommendation GFCM/43/2019/4, the SRC-CM acknowledged the **completeness and complexity of the recommendation** and underlined the **need to urgently implement the measures foreseen**, especially in light of the particular susceptibility of red coral to environmental effects such as the negative impacts of climate change and the ensuing acidification of Mediterranean waters.
- The SRC-CM also acknowledged the advances made on the collection of required information (survey) and the launch of activities towards consolidating a certification scheme through the research programme, **underlining the importance of the full and active involvement of relevant and involved CPCs**

The SRC-CM Workplan

- Continue the Research Programme on Red Coral

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

CPCs should encourage, within the zones identified by the SAC, the progressive implementation of a set of **transitional measures to prevent significant adverse impacts (SAIs) of deep-sea fisheries activities on vulnerable marine ecosystems (VMEs) formed by cnidarian (coral) communities** protected under Annex II of the SPA/BD Protocol of the Barcelona Convention



consistent with the **precautionary approach** and ensure, pending formal scientific advice by the SAC and the adoption of permanent measures, a low risk of SAIs on VME indicator species listed in Annex 2

1. *Antipathella subpinnata* (Ellis & Solander, 1786)
2. *Antipathes dichotoma* (Pallas, 1766)
3. *Antipathes fragilis* (Gravier, 1918)
4. *Callogorgia verticillata* (Pallas, 1766)
5. *Dendrophyllia cornigera* (Lamarck, 1816)
6. *Dendrophyllia ramea* (Linnaeus, 1758)
7. *Desmophyllum dianthus* (Esper, 1794)
8. *Ellisella paraplexauroides* (Stiasny, 1936)
9. *Errina aspera* (Linnaeus, 1767)
10. *Isidella elongata* (Esper, 1788)
11. *Leiopathes glaberrima* (Esper, 1792)
12. *Lophelia pertusa* (Linnaeus, 1758)
13. *Madrepora oculata* (Linnaeus, 1758)
14. *Parantipathes larix* (Esper, 1790)
15. *Savalia savaglia* Nardo, 1844 (synon. *Gerardia savaglia*)



In line with the protocols for the protection of VMEs in the GFCM area of application endorsed by the 42 session of the GFCM

The SAC is invited to provide, in 2021, **advice on the status of the VME indicator species**, based on the information received from CPCs following the adoption of the protocols and on additional pilot research projects

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

Objectives and transitional measures

- Applicable to:
- All fishing vessels > 15 metres LOA operating with bottom contact fishing gear and fishing for *Aristaeomorpha foliacea*, *Aristeus antennatus*, or *Plesionika martia*;
 - all fishing vessels > 15 metres LOA operating with bottom contact gear (bottom trawls, longlines, gillnets and pots and traps) deeper than 300 metres and on all offshore seamounts.

The **SAC Working Group on VME/MPA** should, in [2022]:

- i. collate and analyse all available data sources
- ii. identify where VME indicator taxa are known to occur or are likely to occur;
- iii. reflect on additional measures (including threshold levels, move-on rules, level of scientific observer coverage) for the protection of the VME indicator species included in Annex 2
- iv. provide inputs to the SAC

The **23rd SAC** should, in [2022] **assess the status of VME indicator species** listed in Annex 2 and **propose to the GFCM elements for setting management and control measures**

45th session of the GFCM [2022] should **adopt long-term management measures** allowing for the achievement of the objectives set out in this resolution.

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

From 2021 the **SAC** should **assess**, on an annual basis, the **biological, economic and social implications of implementing several management scenarios** (including FRAs), with the objective of maintaining VME indicator species populations of above critical levels

CPCs and the SAC should facilitate the **collation of existing relevant data** and **the collection of additional relevant data** (including research survey data) and organize adequate workshops. For this purpose, the SAC should **promote scientific cooperation** and a harmonised approach amongst all Mediterranean Sea riparian countries

CPCs may establish, on a voluntary basis, **pilot research projects** in selected areas targeting VME indicator taxa. The research projects may include **observer coverage** to ensure the collection of relevant, timely and accurate data, following a standardised protocol on the presence, distribution, catch and bycatch of VME indicator taxa and on encounters with VMEs, and of any other relevant information for the effective implementation of this resolution

The **GFCM Secretariat** should **assist** CPCs in establishing pilot research projects and should provide technical guidelines (“protocols”) for standardised data collection requirements

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

VME indicator taxa taken as a bycatch during fishing activities targeting other species **should be reported** to the competent national authorities, in order to contribute to a better knowledge of VME indicator taxa occurrence

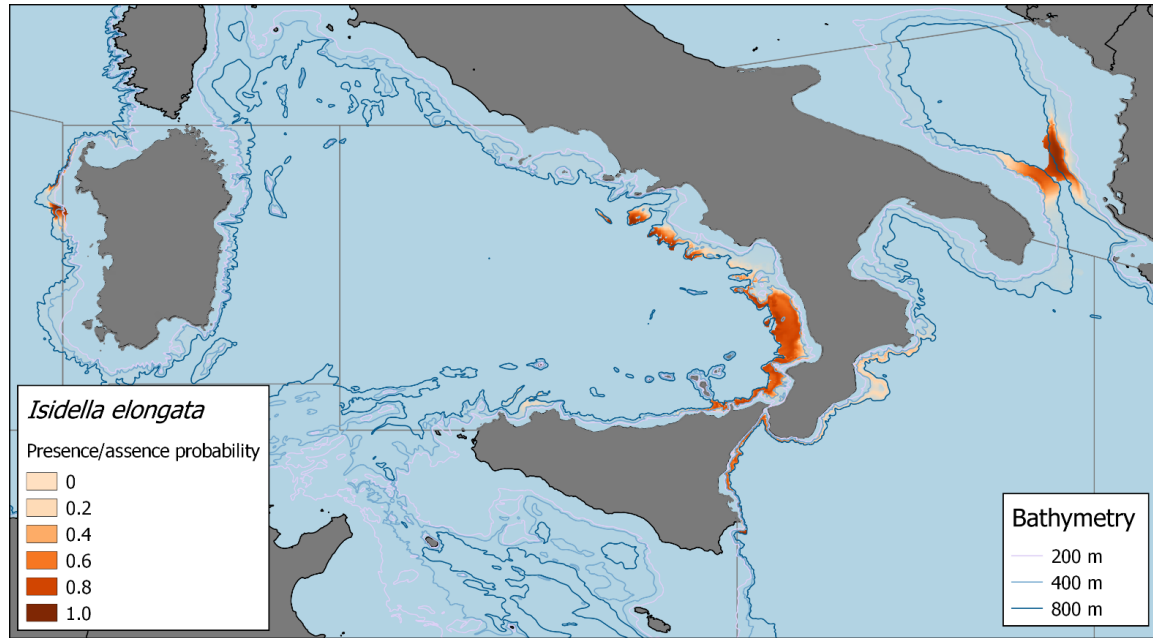
CPCs having vessels carrying out DSF activities should endeavour to **establish an adequate level of scientific observer programme coverage**, in particular if during an exploratory deep-sea fisheries stage

CPCs should establish a mechanism to ensure that deep-sea fisheries vessels actively fishing in the Mediterranean Sea **record VME Indicator Taxa catch and bycatch following the protocols** for the protection of VMEs in the GFCM area

Spatial management to protect EFH and VMEs

The SRC-CM...

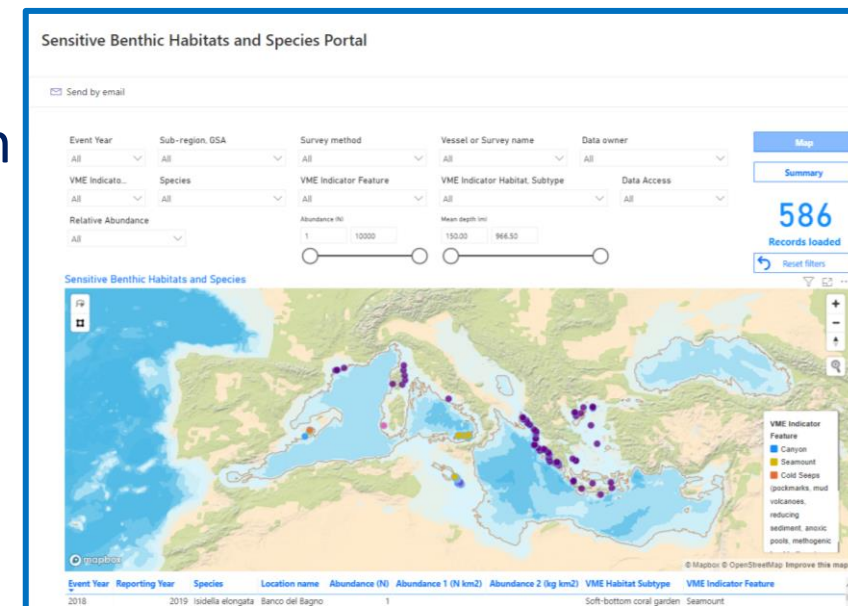
The SRC-CM highlighted the need to **urgently implement additional spatial-management measures to protect both EFH and VMEs**, in line with the MedFish4Ever Declaration, the GFCM mid-term strategy objectives, Resolution GFCM/43/2017/5 on a network of EFH and Resolution GFCM/43/2019/6 on the protection of cnidarian (coral) communities



Carbonara et al., 2021 SRC-CM

The SRC welcomed the outcomes of studies on the occurrence of bamboo coral *Isidella elongata* as key structuring species on deep muddy bottoms hosting EFH of commercially important species such as deepwater red shrimp

The SRC-CM further highlighted the importance of populating the GFCM database on sensitive habitats with additional data from scientific trawl surveys (e.g. MEDITS) towards the identification of hotspot areas



Spatial management to protect EFH and VMEs

The SRC-CM Workplan

- Continue working towards the **identification and proposal of priority EFH and/or areas hosting VMEs** for which **spatial and/or temporal measures** could be **implemented**
- Advance with the adoption of a **formal data call to stakeholders** to obtain data to feed the GFCM Database on Sensitive Benthic Habitats and continue compiling information on VME indicators in the central Mediterranean towards populating the database
- Hold a meeting of the **WGVME-EFH in 2022**

Recommendation GFCM/42/2018/1 on a multiannual management plan for **European eel** in the Mediterranean Sea

2019

From 01/01: **30% reduction of fishing effort or catches** compared 2006–2008 by yearly progressive 10% reduction

By 31/01: **communication of national management plans**

By 30/06: **adoption of a minimum set of measures** by CPCs

By the 43rd GFCM: **transmission of data**, including historical data and recreational fishing data

The GFCM Secretariat, with the support of the SAC, shall provide terms of reference to support the **implementation of a research programme on European eel in the Mediterranean Sea**. It shall be **launched in 2019** and completed in 2021, at the latest 6 months before the forty-fifth session of the GFCM

Recommendation GFCM/42/2018/1 on a multiannual management plan for **European eel** in the Mediterranean Sea

2020/2021

Communication of adopted management measures by CPCs with no management plan by 31/01/2020

Completion of research project in 2021, 6 months before the 45th session GFCM → **March 2022**

Assessment of the multiannual management plan by the SAC and review by the 45th GFCM

2023

03/2023: SAC shall advise on appropriate measures to achieve the long-term objectives taking into account CPC reports, the result of the scientific research programme, the output of the WG, DCRF data.

The **SAC shall advise on the effectiveness of the management measures**, on catch limits, on the minimum sizes, on technical measures and on other possible measures

European eel in the Mediterranean Sea



- Regular meetings of the Joint EIFAAC/ICES/GFCM Working Group on European eel (**WGEEL**) + an ICES Workshop on the future of eel advice (**WKFEA** - online 1–5 February 2021) where GFCM participated
- **Research programme on European eel** in the Mediterranean Sea launched in **July 2020** (“**Phase 0**”) and working according to the adopted concept note. **Tunisia, Italy** and **Greece** are among partners and an **Interim meeting** held on **26-29 April 2021**

The SRC-CM Workplan

- Continue the Research Programme on European eel

Rec. GFCM/42/2018/7 on a regional research programme on **blue crab** in the Mediterranean Sea

Establishes a **regional research programme** towards the **sustainable exploitation of blue crab** in the Mediterranean Sea aimed at ensuring socio-economic sustainability

Objective

Improve scientific, technical and socio-economic knowledge of the fisheries exploiting blue crab: collect data on fishing activities in order to improve research and scientific knowledge

Timeline

- SAC 23 [2022]: assess the outcomes of the regional research programme and present proposals for the adaptation of the measures as well as complementary management and control measures
- GFCM 45 [2022]: adapt SAC 23 measures in accordance with needs, outcomes and objectives

Key elements

- Work Package 1 – Biology and ecology
- Work Package 2 – Fishery-independent data collection – Surveys-at-sea
- Work Package 3 – Fishery-dependent data collection
- Work Package 4 – Stock assessment
- Work Package 5 – Socio-economic elements
- Work Package 6 – Management proposals

Blue crab in the Mediterranean Sea

- Finalization of the Concept Note on a research programme on blue crab (Rec. GFCM/42/2018/7) in the Mediterranean Sea to control the expansion of these non-indigenous species by means of sustainable fisheries
- Tunisian, Greek and Italian experts contributed to drafting the Concept Note



The SRC-CM Workplan

- **Finalize the concept note** for a Research Programme on Blue crab, including through consultation with national experts and administrations and launch the programme



Adaptation to Climate Change

The SRC-CM...

- The SRC-CM welcomed the technical work done on the regional adaptation strategy to cope with the effects of climate change agreeing that the document **contained a crucial toolbox of measures** to be considered, including when implementing regional and/or national adaptation strategies to climate change
- The SRC-CM remarked that the methodology, which had been adopted by the SAC, could have some inherent bias with respect to comparing risks scores among the geographical areas and invited further consideration of this.

The SRC-CM Workplan

- Continue the work towards technical advice on the impact of climate change on fisheries



Other conclusions

The SRC-CM...

- The SRC-CM acknowledged the **proposal from Libya to divide GSA 21 into three marine subareas (21.1, 21.2 and 21.3)**, noting how such a decision could have implications for the management of shared stocks and Libya's data reporting obligations for priority species, and so should be studied carefully
- Following presentations of results from relevant mid-term strategy activities carried out in Tunisia, including the **monitoring of discards from trawling activities in GSA 14** (Gulf of Gabès) and a **comprehensive socio-economic survey of the Tunisian fleet**, the SRC-CM enthusiastically **welcomed these advances** and recognized the significant efforts made to produce these positive outcomes in line with the standard GFCM-FAO methodologies, already applied in other areas of the Mediterranean and Black Sea. The **importance of continuing these activities into the future was stressed** and, in this light, the SRC-CM expressed its hope these surveys would **represent a turning point towards producing a regular time series** to support the generation of advice. In this respect the SRC-CM underlined the fruitful and positive collaboration between national experts and the GFCM in the subregion, fostered by the technical and cooperative work of the FAO MedSudMed regional project.

Workplan: other items

- **Compile relevant information on priority species**, in particular small pelagic species, towards increasing the coverage of stock assessment for these species.
- Organize **data preparation and benchmark sessions** for red mullet in GSA 20, and anchovy and sardine in GSA 16, and revise previous benchmarks for red mullet in GSAs 12-14, 15, 16 and 19
- **Finalize the concept note for a Research Programme on Blue crab**, including through consultation with national experts and administrations and launch the programme
- Continue **supporting the monitoring programmes for incidental catch of vulnerable species and discards** in Tunisia including by:
 - Facilitating the continued execution of the monitoring programmes
 - Identifying and testing mitigation measures to reduce incidental catch of vulnerable species
- Continue supporting the regular collection of **socio-economic** data for the Tunisian fleet, including the small-scale fleet segments



Food and Agriculture
Organization of the
United Nations



General Fisheries Commission
for the Mediterranean
Commission générale des pêches
pour la Méditerranée

Thank You!

Focus Group on the Strait
of Sicily and the Ionian Sea

MEDAC

6 May 2021