



Food and Agriculture
Organization of the
United Nations



General Fisheries
Commission for
the Mediterranean

The ecosystem approach to fisheries management in the Mediterranean and the Black Sea

Symposium on applying the Ecosystem Approach
to Fisheries Management in ABNJ
12 March 2025

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Structure of this presentation

- Setting the scene
- GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea
- GFCM multiannual management plan on deep water red shrimp
- GFCM Fisheries Restricted Areas
- Reflections into the future



Setting the scene

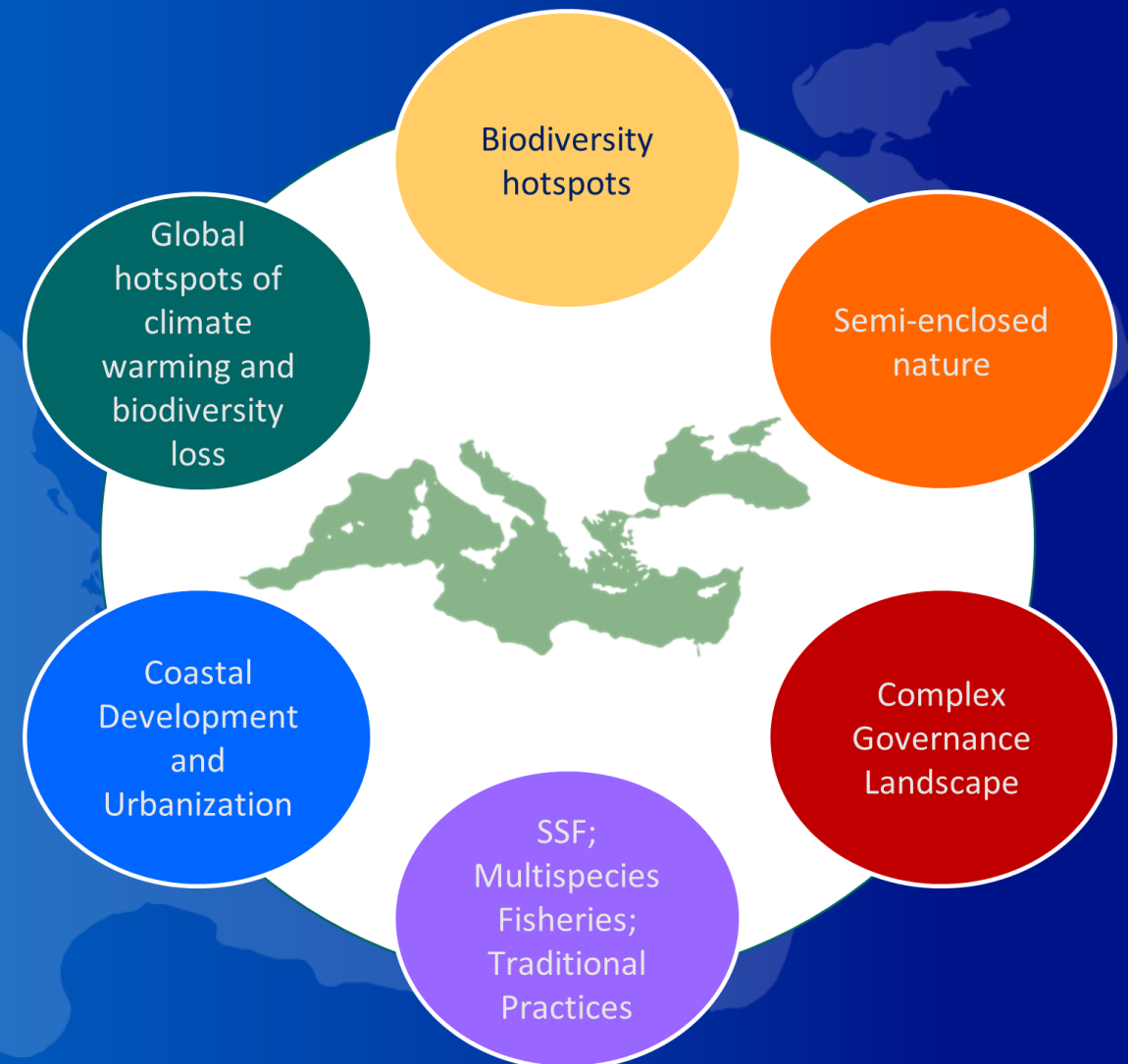
An underwater scene showing a large school of silver fish swimming between two rocky reefs. The water is clear and blue. The reefs are covered in brown and orange algae. The fish are swimming in a loose formation, moving from the left towards the right. The lighting is bright, suggesting a shallow depth.

The Mediterranean and the Black Sea

Unique characteristics

- + Ecological
- + Socio-economic
- + Geopolitical

Understanding them is essential for developing tailored management approaches that balance conservation objectives with the socio-economic needs of coastal communities that account for the interconnectedness of marine ecosystems, the cultural significance of fishing traditions, and the complexities of multi-sectoral governance arrangements in the region



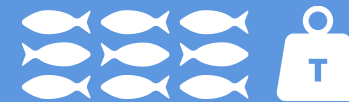
The importance of fisheries and aquaculture for the Mediterranean and Black Sea region

Key pillars for a Blue Transformation

Food and **high quality protein** for an increasing population

Employment for men, women and young people

Essential part of the fabric of **coastal communities**



TOTAL PRODUCTION OF
2 MILLION TONNES

EMPLOYMENT OPPORTUNITIES

700 000 JOBS*



TOTAL REVENUE FROM
FISHERIES AND AQUACULTURE

USD 20.5 BILLION*

EVERY COASTAL VILLAGE

HAS A FISHER



**along the value chain*

The General Fisheries Commission for the Mediterranean (GFCM)

The FAO regional fisheries management organization for the Mediterranean and the Black Sea



23 Contracting Parties and
6 Cooperating non-Contracting Parties
(Bosnia & Herzegovina, Georgia, Jordan, Moldova, Saudi Arabia, and Ukraine)

OBJECTIVES

- the **conservation and sustainable use of living marine resources** at all levels (biological, social, economic and environmental)
- the **sustainable development of aquaculture**

GFCM plays a critical role in fisheries governance and has the authority to make binding recommendations for fisheries conservation and management and for aquaculture development.

**What tools
does the
GFCM
have at
disposal?**



High-level commitments

MALTA Ministerial declaration (2017)

MINISTERIAL CONFERENCE ON THE SUSTAINABILITY OF MEDITERRANEAN FISHERY
MALTA, 30 MARCH 2017

MALTA MedFish4EVER MINISTERIAL DECLARATION

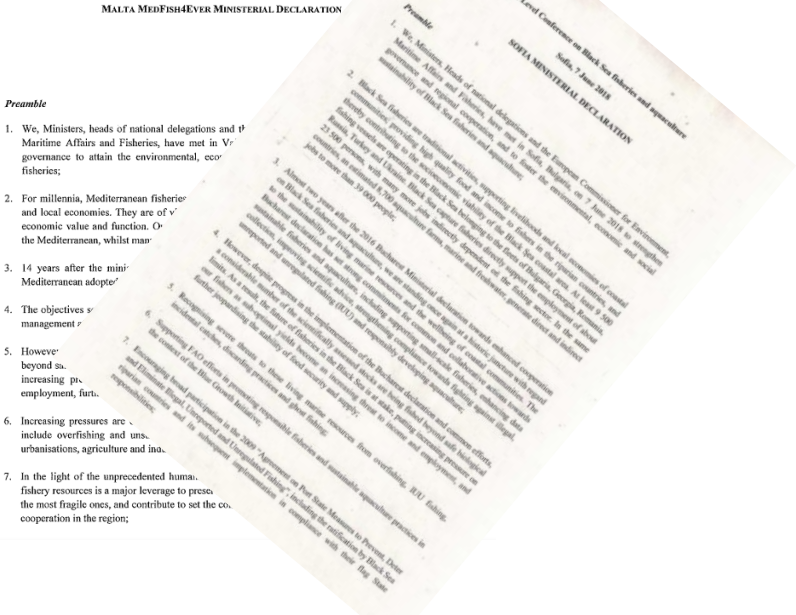
Preamble

1. We, Ministers, heads of national delegations and of Maritime Affairs and Fisheries, have met in Valletta, Malta, to discuss the future of the Mediterranean fisheries; to attain the environmental, economic and social objectives;
2. For millennia, Mediterranean fisheries and local economies. They are of great economic value and function. Over the centuries, they have sustained the livelihoods of millions of people in the Mediterranean, whilst maintaining the ecological balance of the region;
3. 14 years after the mini-Mediterranean adopted the 2013 Fisheries Ministers' Declaration on Environment, Economic and Social Sustainability of Fisheries and Aquaculture in the Mediterranean, we are meeting in Malta to discuss the future of the Mediterranean fisheries; to attain the environmental, economic and social objectives;
4. However, despite progress in the implementation of the 2013 Fisheries Ministers' Declaration on Environment, Economic and Social Sustainability of Fisheries and Aquaculture in the Mediterranean, we are still facing significant challenges. These include overfishing, illegal, unreported and unregulated (IUU) fishing, climate change, marine pollution, and the impact of other human activities on the marine environment. These challenges are threatening the sustainability of the Mediterranean fisheries and the livelihoods of millions of people in the region;
5. Recognising that the Mediterranean fisheries and aquaculture sector is a key element of the Mediterranean's economic, social and environmental sustainability, and that it is essential to ensure the sustainability of this sector for the benefit of present and future generations, we are committed to taking urgent and effective measures to address these challenges;
6. Supporting FAO's efforts to promote responsible fisheries and aquaculture practices in the Mediterranean, and to ensure the sustainability of the sector, we are committed to taking urgent and effective measures to address these challenges;
7. Emphasising the need for increased cooperation and coordination between all stakeholders in the region, we are committed to taking urgent and effective measures to address these challenges;
8. In the light of the unprecedented human pressure on the Mediterranean fisheries and aquaculture sector, we are committed to taking urgent and effective measures to address these challenges;

SOFIA Ministerial declaration (2018)

High Level Conference on Black Sea fisheries and aquaculture
Sofia, 7 June 2018

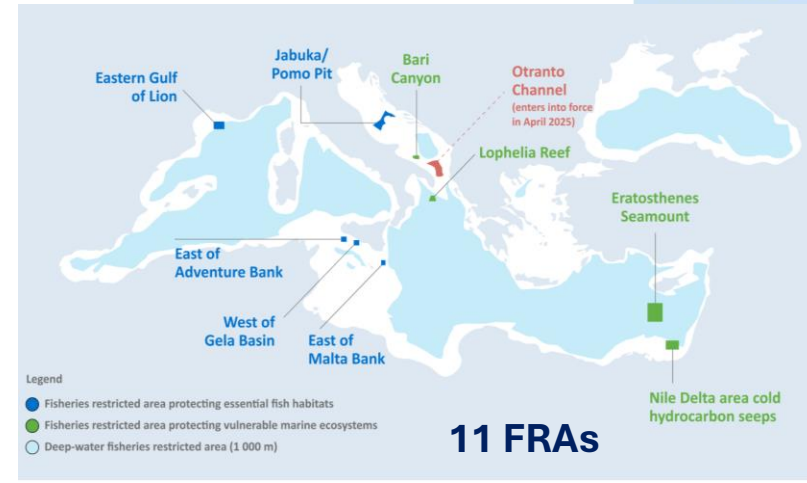
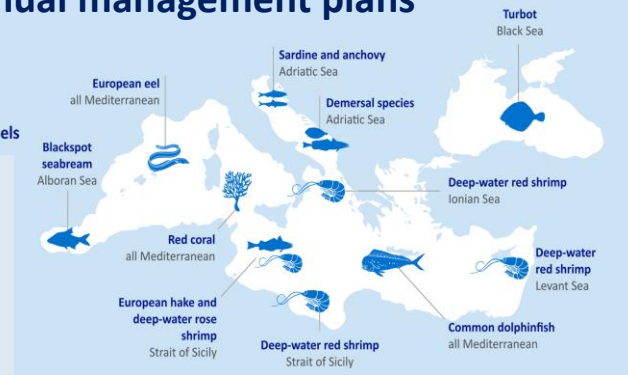
SOFIA MINISTERIAL DECLARATION



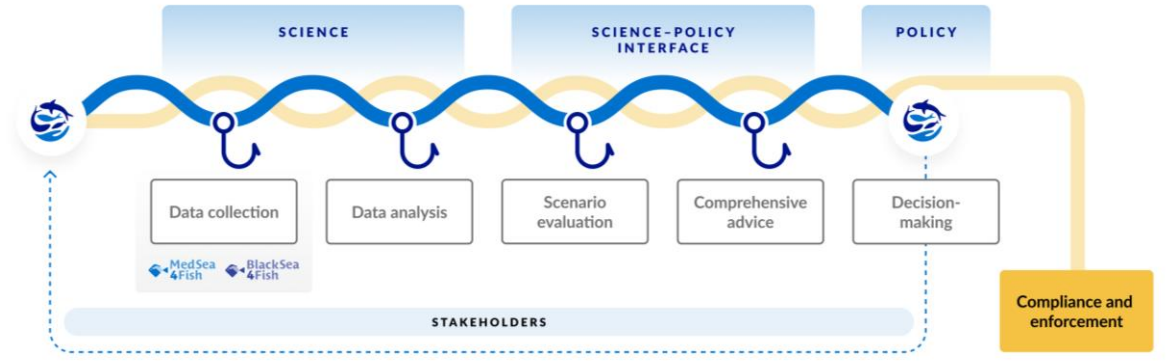
GFCM Decisions

Multiannual management plans

11 management plans involving 6 300+ vessels

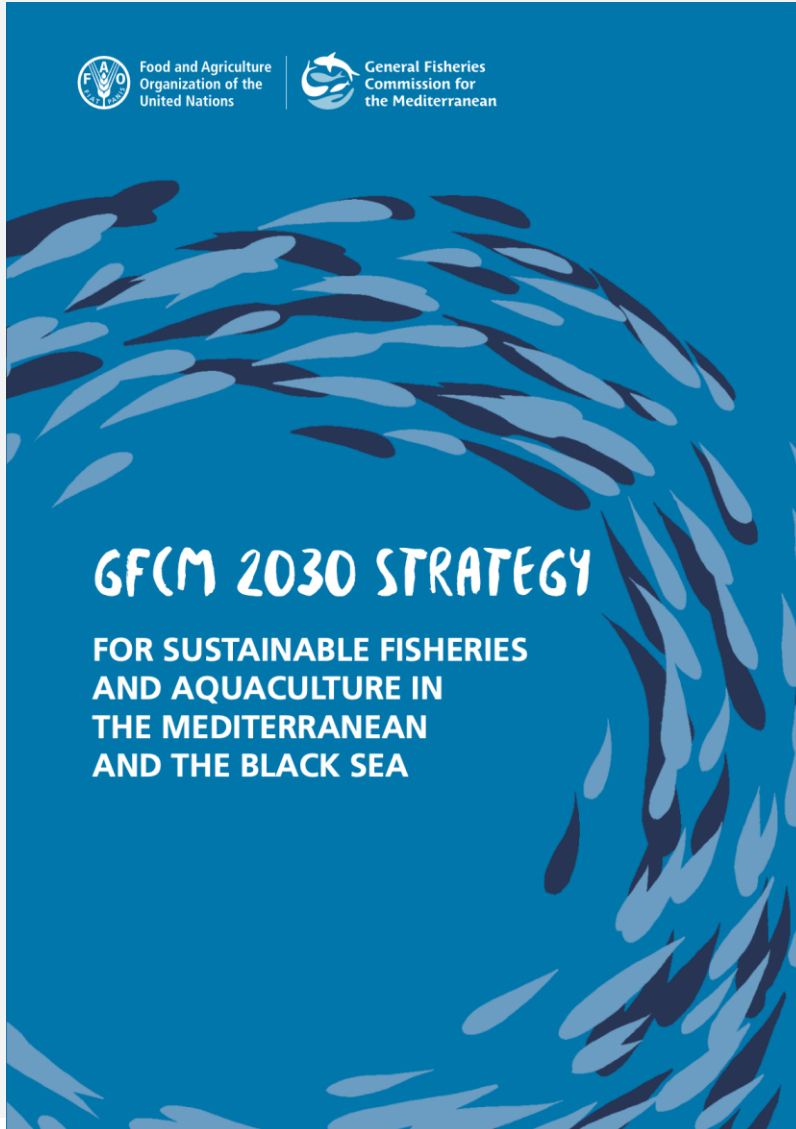


GFCM Fisheries advisory process



- Enhancing research and data collection
- Curbing IUU fishing
- Sharing and spreading best practices
- Improving social protection
- Securing urgent funding for priority actions

The GFCM 2030 Strategy



Target 1. Fisheries and ecosystems: healthy seas and productive fisheries



Target 2. Compliance and enforcement: a level playing field to eradicate illegal, unreported and unregulated fishing



Target 3. Aquaculture: a sustainable and resilient sector growing to its full potential



Target 4. Livelihoods: decent employment and engaged fishers towards profitable fisheries



Target 5. Capacity development: technical cooperation, knowledge sharing and efficient partnerships in a subregional perspective

The GFCM 2030 Strategy

for sustainable fisheries and aquaculture in the Mediterranean and the Black Sea

TARGET 1.

FISHERIES AND ECOSYSTEMS:
HEALTHY SEAS AND PRODUCTIVE FISHERIES

Output 1.1. Technical advice on the status of fisheries and potential management scenarios improved to provide a solid basis for decision-making

Output 1.2. Evidence-based adaptive fisheries and ecosystem management implemented

Output 1.3. Efficient **area-based conservation measures**, technical and nature-based solutions strengthened to conserve biodiversity and enhance the productivity of marine living resources

Output 1.4. Threats to fisheries and the marine environment, including plastic pollution, climate change and the expansion of non-indigenous species, prevented and mitigated

GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea



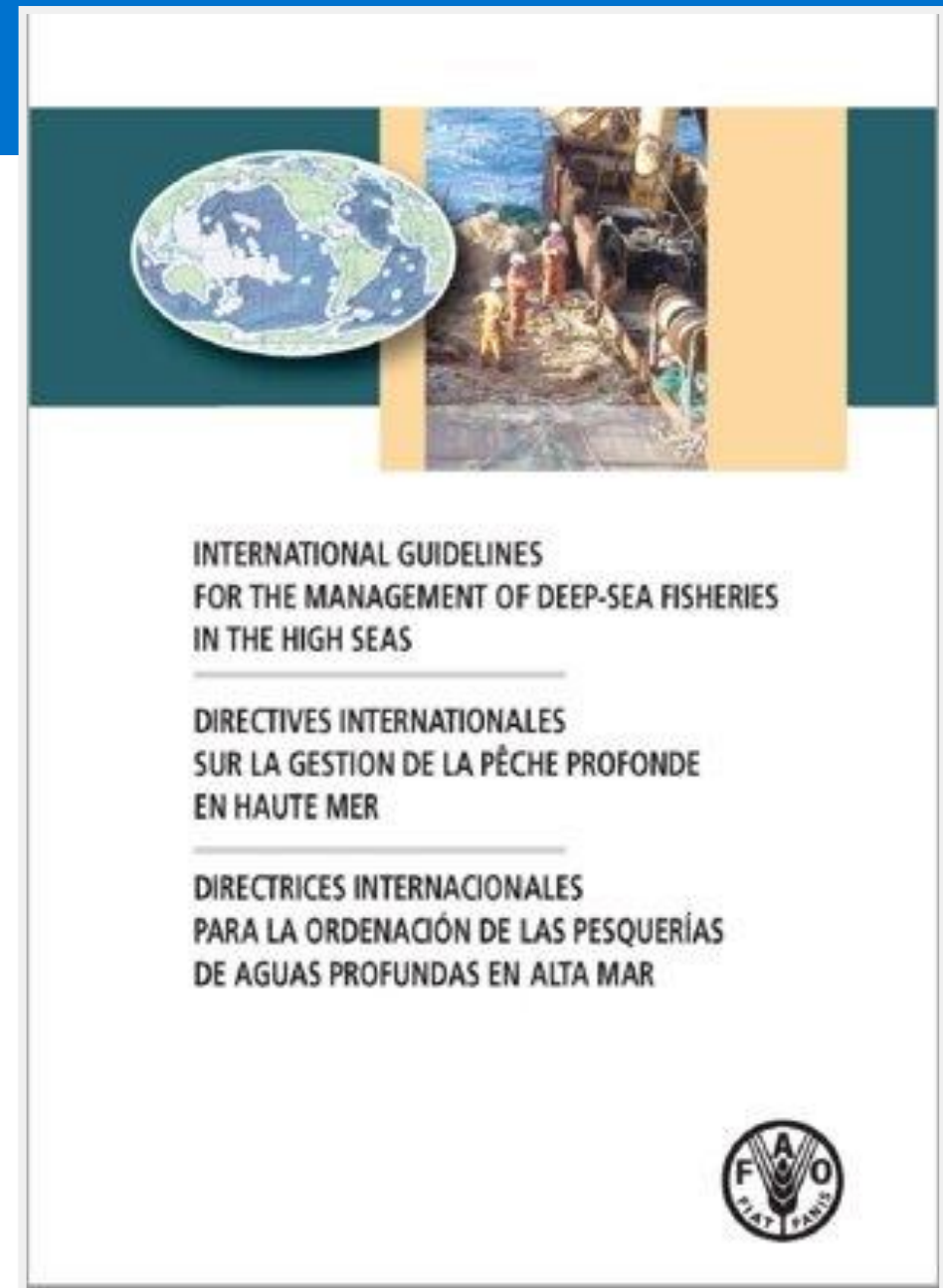
GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea

United Nations General Assembly (UNGA)
Resolution 61/105 → VMEs constitute areas that may be vulnerable to impacts from fishing activities.

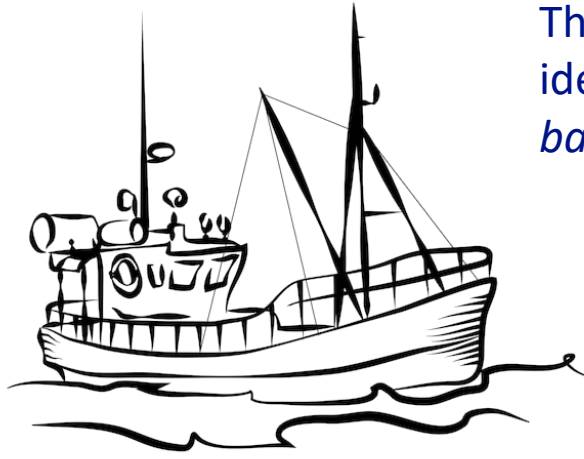
[...] Regional Fisheries Management Organisations (RFMOs) to take urgent action to protect VMEs from destructive fishing practices, including bottom fishing, in areas beyond national jurisdiction [...].

In the GFCM area of application, the management measure to protect an identified VME is the **FRA - Fisheries Restricted Area**

NB: the protection of VMEs is linked to the management of deep-sea fisheries!

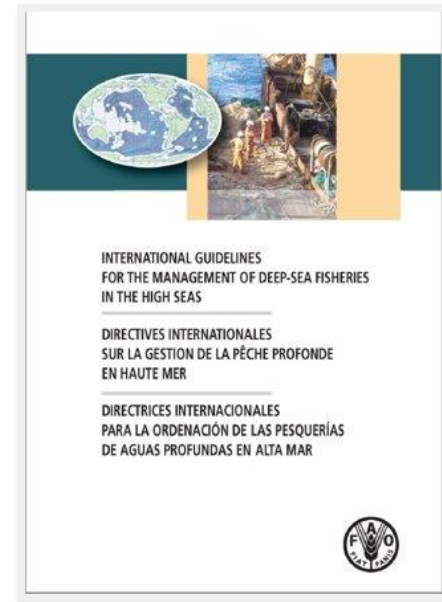
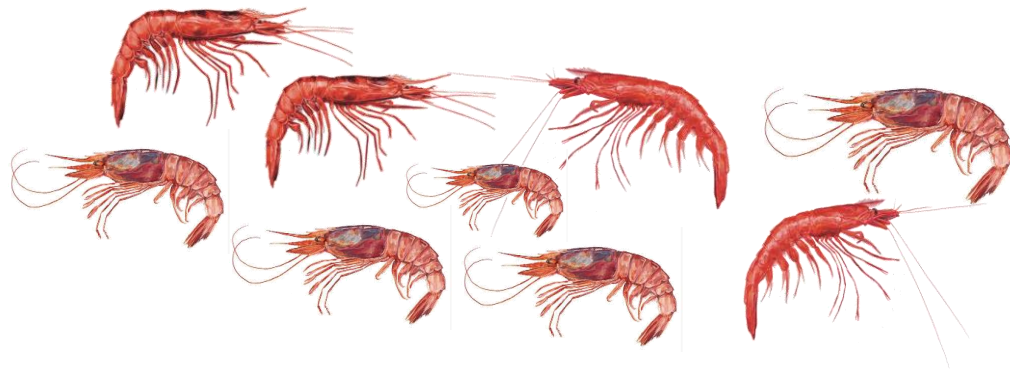


GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea



The Mediterranean Sea is an enclosed basin with many neighbouring Countries; the identification of DSF has been made **considering gear, target species and depths** – i.e. *not based on the jurisdiction of the waters where they operate*:

- all fishing vessels above 15 m (LOA) operating **with bottom contact fishing gear fishing for *Aristaeomorpha foliacea*, *Aristeus antennatus*, or *Plesionika martia***
- all fishing vessels above 15 m (LOA) operating with bottom contact gears (bottom trawls, longlines, gillnets and pots and traps) at **depths deeper than 300* m** and all offshore seamounts;



*** in the GFCM area of application, bottom trawl below 1000 m is forbidden since 2005**

GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea

1. Technical protocols for the protection of VMEs in the GFCM area of application (GFCM 42, 2018, Appendix 17)

- **A - VME encounter reporting protocol in the GFCM area of application and Mediterranean VME indicator features, habitats and taxa list**
- **B - Mapping existing deep-sea fishing areas in the GFCM area of application**
- **C - Exploratory deep-sea bottom fishing reporting protocol in the GFCM area of application**

Annex

VME encounter reporting in the GFCM area of application

Separate forms to be completed for each deployment of the fishing gear (haul/set) in which VME Indicator Taxa are caught.

A. Fishing Trip Information	
Country:	
Vessel name:	
Captain (name and last name):	
Date of encounter (dd/mm/yyyy):	
B. Fleet and gear information²	
Fleet segment:	
Fishing gear:	
C. VME Encounter coordinates	
GSA:	Statistical grid:
Point 1 (Start)	Point 2 (End)
Latitude:	Longitude:
Latitude:	Longitude:
Fishing depth (average or range, m):	
VME Feature and/or Habitat (Annex 1 a and b)	
D. VME Indicator Taxa catch information (Annex 1 c)	
Total live weight of corals in the haul/set (kg):	
Total live weight of sponges in the haul/set (kg):	
Total live weight of other vulnerable benthic taxa in the haul/set (kg):	
E. VME Indicator Taxa (by trained observers on board)	
Identify VME Taxa to lowest taxonomic level (species if possible) and provide comments.	
F. Pictures of VME Indicator Taxa (by fishers and/or observers on board)	
Take pictures of the different VME Indicator Taxa and submit them as an attachment to the current form.	

Annex 3

Exploratory deep-sea fishing reporting in the GFCM area of application (Mediterranean Sea)

Separate forms must be completed for each new exploratory deep-sea fishing trip

A. Fishing Trip Information	
Country:	
Vessel name:	
Captain (name and last name):	
Dates of exploratory fishing trip (dd/mm/yyyy format):	
B. Fleet and gear information¹³	
Fleet segment:	
Fishing gear:	
Area information	
GSA:	Statistical grid ¹⁴ :
Area fished (coordinates-attach map):	
VME Indicator Feature (if any):	
Depth range fished (m):	
Fishing effort:	
C. Catch summary	
List main commercial species and quantities caught during the exploratory deep-sea bottom fishing	
D. Bycatch summary	
Provide details of bycatch species	
D. VME Indicator Taxa	
Use the provided VME Encounter Protocol for any catch of VME Indicator Taxa	

GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea

1. Technical protocols for the protection of VMEs in the GFCM area of application (GFCM 42, 2018, Appendix 17)

Annex 1 - Mediterranean VME indicator features, habitats and taxa

(a) Mediterranean VME indicator features

The following features potentially support VMEs:

- Seamounts and volcanic ridges
- Canyons and trenches
- Steep slopes
- Submarine reliefs (*slumped blocks, ridges, cobble fields, etc.*)
- Cold seeps (*pockmarks, mud volcanoes, reducing sediment, anoxic pools, methanogenetic hard bottoms*)
- Hydrothermal vents

(b) Mediterranean VME indicator habitats

The following habitats potentially support VMEs:

- Cold-water coral reefs
- Coral gardens
 - Hard-bottom coral garden
 - Soft-bottom coral gardens
- Sea pen fields
- Deep-sea sponge aggregations
 - "Ostia" sponge aggregations
 - Hard-bottom sponge gardens
 - Glass sponge communities
 - Soft-bottom sponge gardens
- Tube-dwelling anemone patches
- Crinoid fields
- Oyster reefs and other giant bivalves
- Seep and vent communities
- Other dense emergent fauna

(c) Mediterranean VME indicator taxa

Phylum	Class	Subclass (Order)
Cnidaria	Anthozoa	Hexacorallia (Antipatharia, Scleractinia)
		Octocorallia (Alcyonacea, Pennatulacea)
	Hydrozoa	Ceriantharia
		Hydroidolina
Porifera (sponges)	Demospongiae	
	Hexactinellida	Amphidiscophora
		Hexasterophora
Bryozoa	Gymnolaemata	
	Stenolaemata	
Echinodermata	Crinoidea	Articulata
Mollusca	Bivalvia	Gryphaeidae (<i>Neopycnodonte cochlear</i> , <i>N. zibrowii</i>)
		Heterodonta* (Lucinoida) (e.g. <i>Lucinoma kazani</i>)
		Pteriomorphia* (Mytiloida) (e.g. <i>Idas modiolaeformis</i>)
Annelida*	Polychaeta	Sedentaria (Canalipalpata) (e.g. <i>Lamellibrachia anaximandri</i> , <i>Siboglinum</i> spp.)
Arthropoda*	Malacostraca	Eumalacostraca (Amphipoda) (e.g. <i>Haploops</i> spp.)

*only chemosynthetic species that indicate the presence of a cold seep or hydrothermal vent are considered

GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea

2. 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

1. CPCs shall progressively implement transitional measures to prevent SAIs of deep-sea fisheries activities on VMEs formed by cnidarian (coral) communities protected under Annex II of the SPA/BD Protocol of the Barcelona Convention
2. These measures should be 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 of this resolution.
3. These measures should be in line with the **protocols for the protection of VMEs in the GFCM area of application endorsed by the forty-second session of the GFCM** and reported in Appendix 17 of its report.

Key species or indicator species: cnidarian species listed in Annex II of the SPA/BD Protocol of the Barcelona Convention and impacted by fisheries

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*)

GFCM work on Deepsea fisheries and VMEs in the Mediterranean Sea

3. Maintenance of a Sensitive Benthic Habitats and Species database in support of fisheries management and advice to the GFCM

- The GFCM Secretariat holds and maintain updated a database on **VME Indicators presence (abundance)/absence** in the Mediterranean sea **to allow the experts to formulate their scientific advice to the GFCM for possible management measures.**
- The request to develop this tool stemmed from the WGVME in 2017 as it was considered needed to **facilitate the work of the experts in providing advice to the GFCM SAC** to prevent possible negative impacts by fisheries on sensitive “hot spot” areas.
- It was launched online in July 2020 with an initial dataset collected by means of different surveys (records from 1974 up to nowadays). Hosted in SharePoint (password protected) <https://gfcml.sharepoint.com/SBHS>
- **An ad-hoc data call has been developed by the Secretariat and launched January every year since 2022 to keep the DB updated to include the most recent information on VME indicators to discuss at the WGVME-EFH**

Sensitive Benthic Habitats and Species Portal

A[®] Immersive Reader

All All All All All

VME Indicator T... Species VME Indicator Feature VME Indicator Habitat, Subtype Data Access

All All All All

Relative Abundance Abundance (N) Mean depth (m)

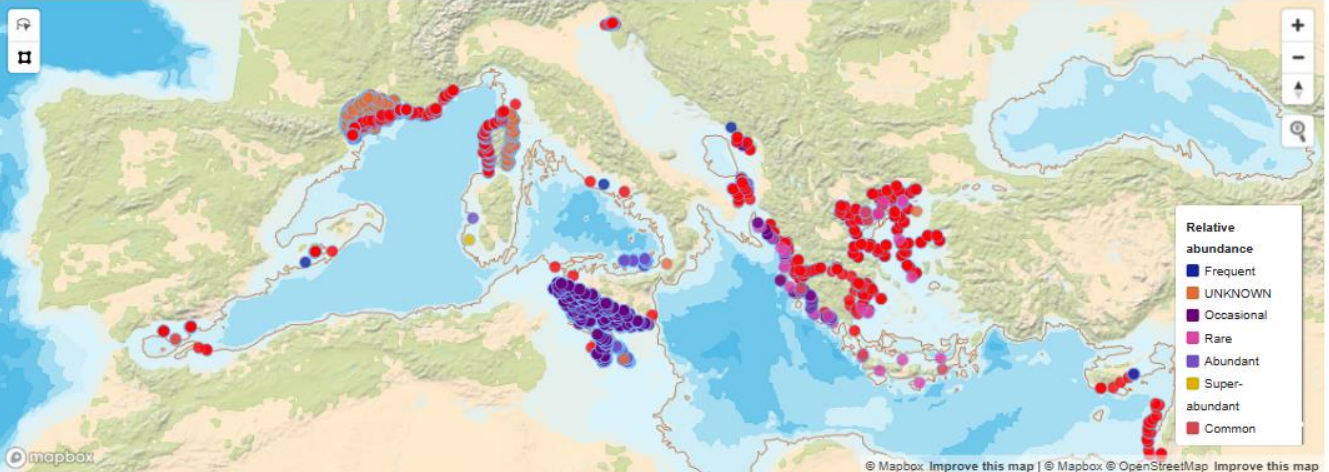
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Summary

20539
Records loaded

Reset filters

Sensitive Benthic Habitats and Species



Event year	Scientific name	Data source	Survey Method	Mean Depth	GSA	Quantity	Unit
2022		Literature	Video-based determination of coverage	162	18 - Southern Adriatic Sea		total live weight of specimens in haul (kg)
2022		Research	Trawling survey	7644	20 - Eastern Ionian Sea		total live weight of specimens in haul (kg)
2022		Research	Trawling survey	28714	22 - Aegean Sea		total live weight of specimens in haul (kg)
2022	<i>Atrina fragilis</i>	Research	Trawling survey	44	17 - Northern Adriatic Sea	0	total live weight of specimens in haul (kg)
2022	<i>Suberites domuncula</i>	Research	Trawling survey	242	17 - Northern Adriatic Sea	1	total live weight of specimens in haul (kg)
2022	<i>Tethya aurantium</i>	Research	Trawling survey	66	17 - Northern Adriatic Sea	0	total live weight of specimens in haul (kg)

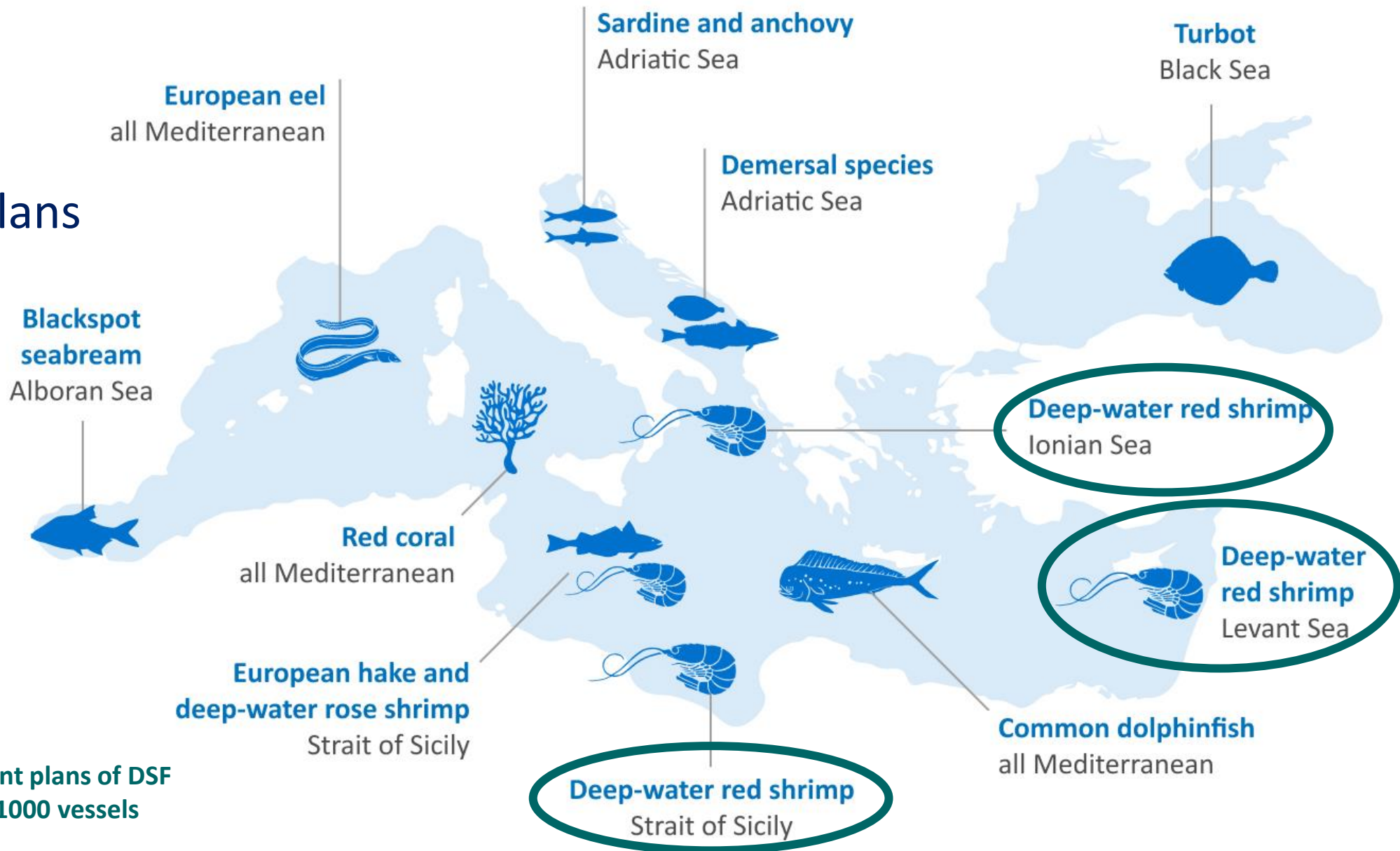


**GFCM multiannual management plans
on deep water red shrimp**

GFCM Multiannual management plans

11
multiannual
management plans

6 300+ vessels



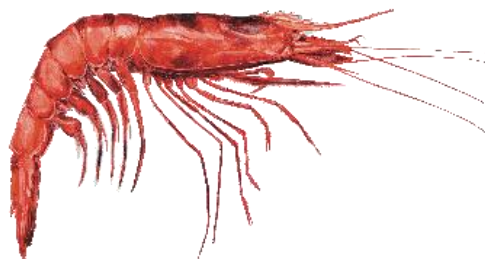
3 management plans of DSF
involving ~1000 vessels

Deep-water red shrimp multiannual management plans

THE PLAN

Rec. GFCM/45/2022/5
Rec. GFCM/45/2022/6
Rec. GFCM/45/2022/7

Rec. GFCM/46/2023/2
Rec. GFCM/46/2023/3
Rec. GFCM/46/2023/4



Catch limits



Temporal measures



MCRS



Limits of fishing capacity



Authorised vessels/landing points



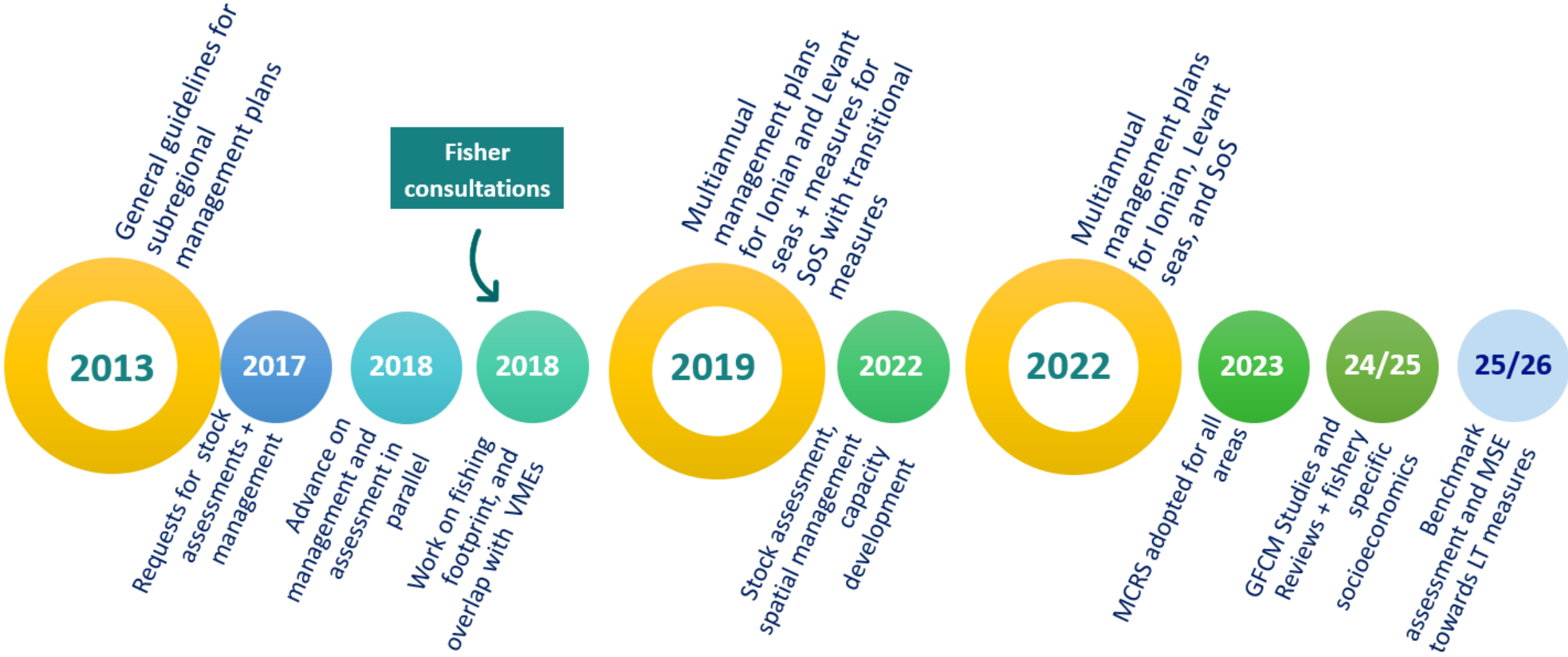
Measures addressing IUU fishing



Adaptive approach

- + **Transitional period:** 2023-2025 with a transitional fishing regime based on 2021:
 - Catch limits by species: 3% annual reduction
 - Temporal closure for 30 consecutive days between the months of March and September.
 - MCRS set at 25 mm CL (additional Recs)
 - Fleet capacity frozen at 2019
 - Annual advice on stock status
 - Permanent international joint inspection and surveillance scheme while...
 - i) performing MSE, ii) finalizing the identification of the fishing footprint on vulnerable marine ecosystems; and iii) finalizing the identification of essential fish habitat areas for juveniles and spawners of deep-water red shrimps
- + **LT management plan:** 2026 – 2030:
 - Single-species yearly catch limits based on a Harvest Control Rule emerging from MSE + FRAs

Deep-water red shrimp multiannual management plans



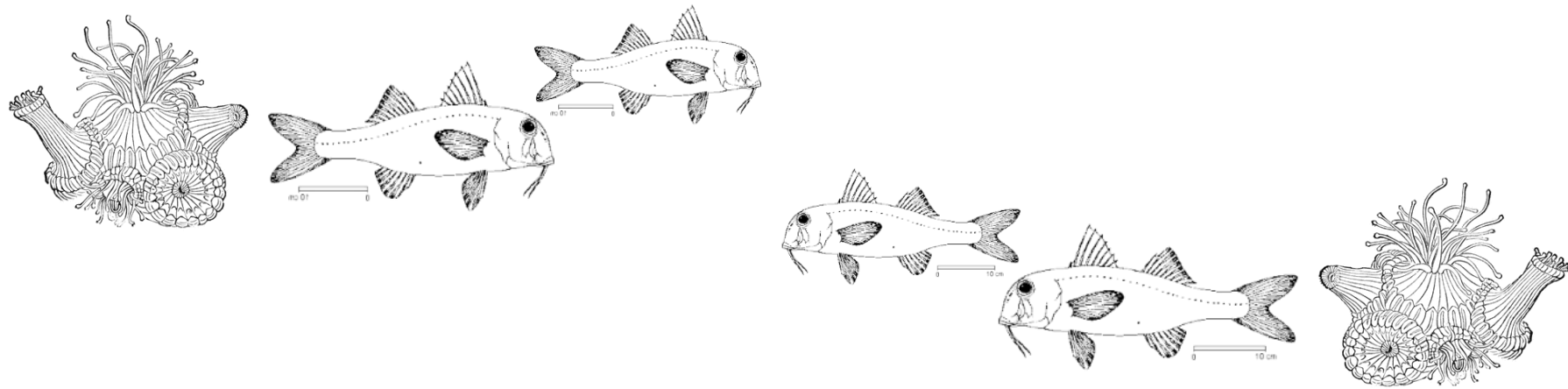
GFCM Fisheries Restricted Areas



GFCM Fisheries Restricted Areas

Definition by the GFCM SAC (2007)

“... a geographically-defined area in which all or certain fishing activities are temporarily or permanently banned or restricted in order to improve the exploitation and conservation of harvested living aquatic resources or the protection of marine ecosystems...”



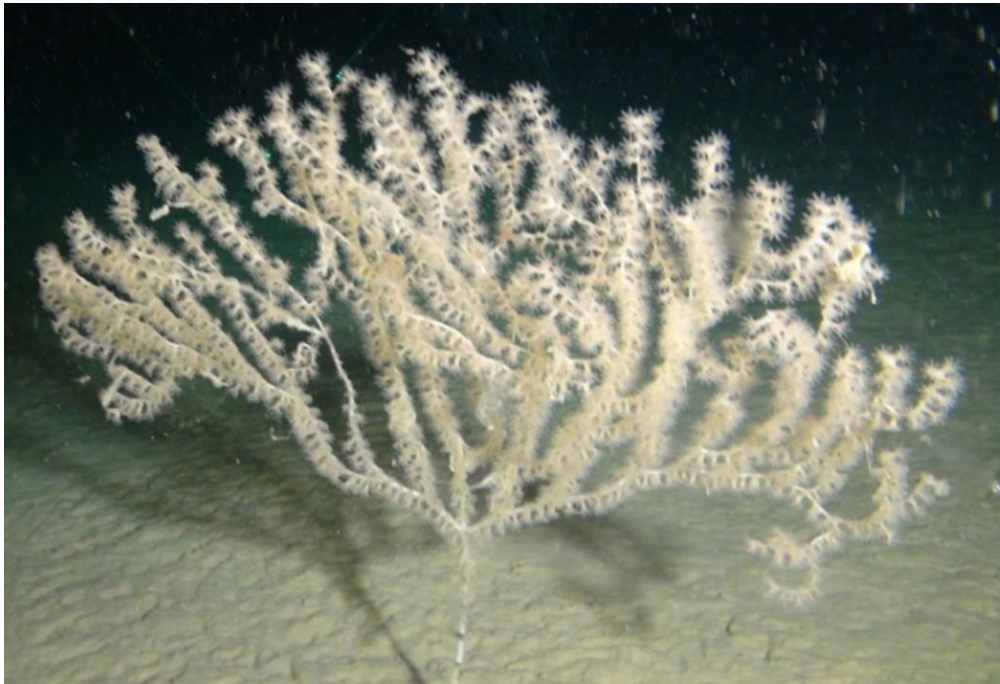
GFCM Fisheries Restricted Areas

11 FRAs

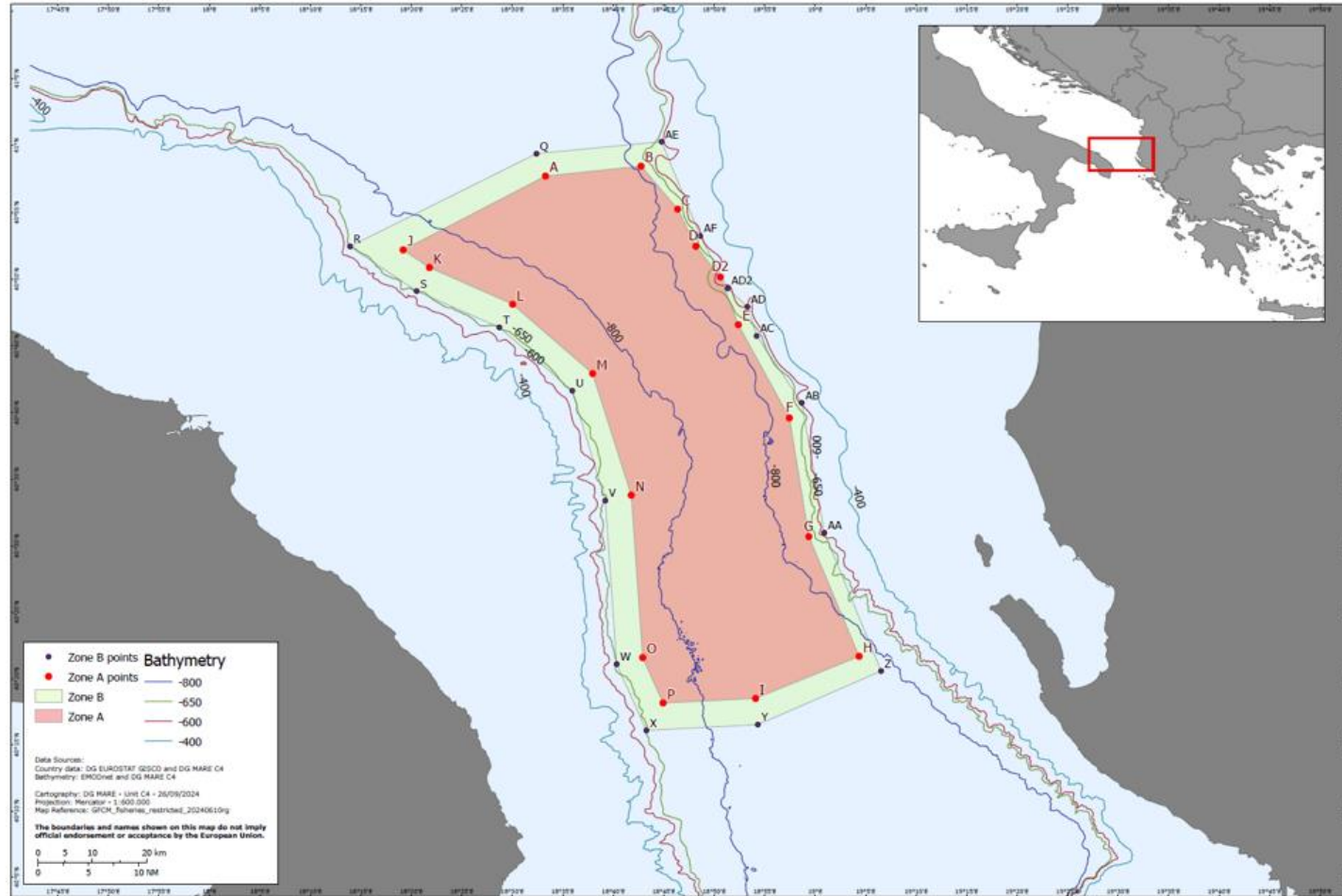


Spatial management: Otranto channel FRA

The Otranto Channel is a vital ecological corridor, home to deep-sea VME indicators species such as the bamboo coral, as well as essential fish habitats, e.g. for deep water red shrimp species

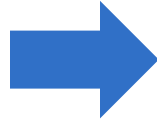


GFCM Fisheries Restricted Area



Spatial management: Otranto channel FRA

The **Otranto Channel** is a **vital ecological corridor**, home to the **VMEs** and **essential fish habitats**



The process to establish a FRA in the Otranto channel started in 2021. Following the implementation of a roadmap including a scientific survey, socio-economic surveys, and stakeholder consultations, the FRA was **adopted with a binding recommendation in 2024**

Scientific community & NGOs

- International scientists and national experts from relevant CPCs spearheaded research efforts
- A high-tech ROV surveys and advanced spatial analyses provided critical insights into habitat distribution
- Strong interest from NGOs

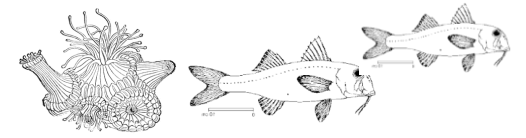
Fisheries sector

- Targeted socio-economic assessments and LEK questionnaires ensured fisher perspectives were considered, balancing conservation with livelihoods.
- Transparent consultations fostered trust and cooperation, shaping a practical and equitable FRA framework.

Governments & Policy Makers

- Relevant CPCs actively participated in dialogue and facilitated discussions and policy alignment
- The Jabuka/Pomo FRA model inspired a collaborative, science-driven approach for success.

Spatial management: FRAs & OECCMs



Spatial protection to enhance biodiversity conservation has become more and more relevant in the past decade. The **Kunming-Montreal Global Biodiversity Framework** set as a target the **protection of 30 percent of the planet by 2030 (“30 by 30” target)**. These targets can be met either by increasing the number of MPAs or through already existing spatial management measures that can be shown to contribute to biodiversity and ecosystem conservation.

GFCM FRA (SAC, 2007)

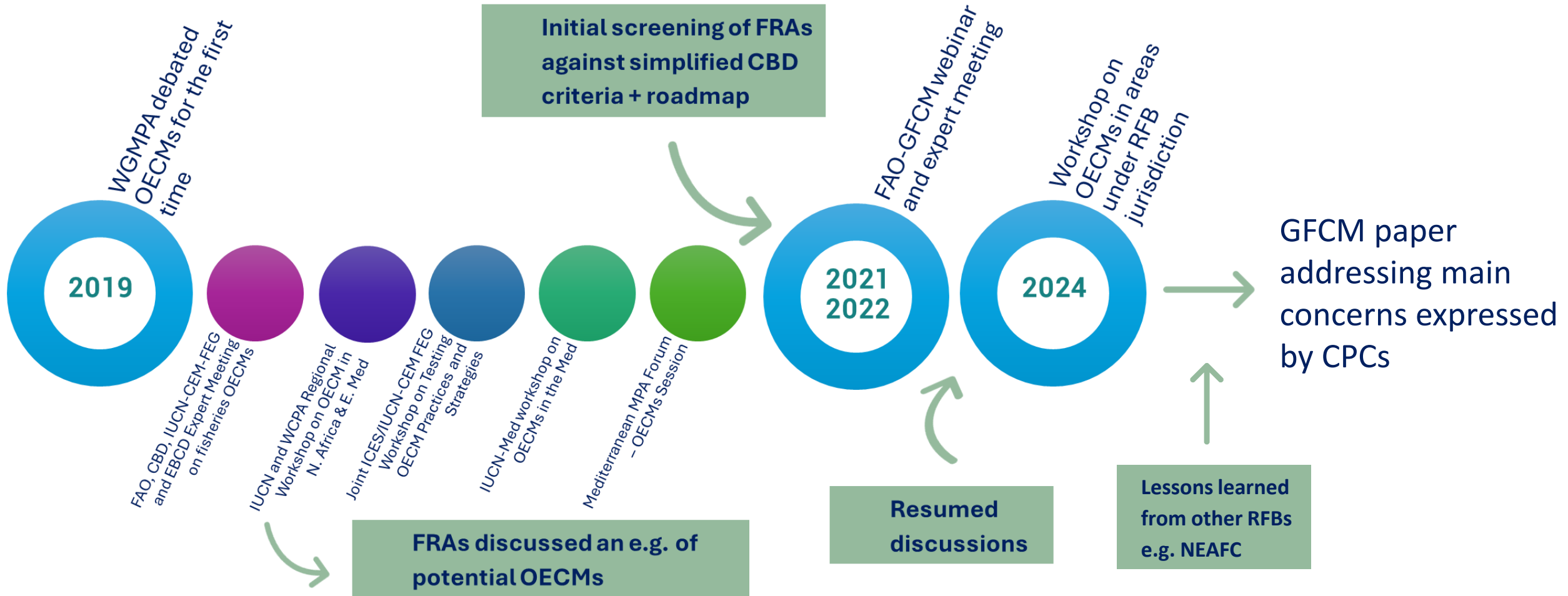
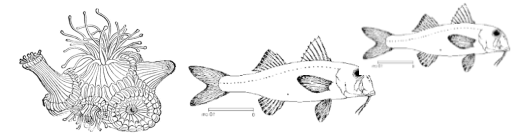
“... a geographically-defined area in which all or certain fishing activities are temporarily or permanently banned or restricted in order to improve the exploitation and conservation of harvested living aquatic resources or the protection of marine ecosystems...”

OECCM (CBD, 2018)

“a **geographically defined area other than a Protected Area**, which is **governed and managed** in ways that **achieve positive and sustained long-term outcomes** for the in-situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values”

So the challenge is to put all these pieces of the puzzle together towards **identifying areas where efficient spatial management of fisheries coincides with the highest ecological/biodiversity benefits** resulting in **effective conservation** → GFCM FRAs have high potential for mainstreaming biodiversity conservation in the fisheries sector.

Spatial management: FRAs & OECMs



Reflections into the future

- **GFCM FRAs are important spatial management measures** that regulate/prohibit fishing activities in a given area towards 1) protecting marine ecosystems/sensitive habitats from potentially significant adverse impacts and/or 2) enhancing the productivity of marine living resources.
- **More management plans**, that also **include FRAs** within a single package
- **Stakeholder engagement** from the very start of the process is **crucial** in order to ensure a streamlined endorsement and adoption.
- GFCM FRAs could be good candidates to be recognized as **Other Effective area-based Conservation Measures** due to their contribution to conservation of deep-sea areas and resources.
- Assessing the **effectiveness of DSF management plans**
- Ensure a **level playing field** among all Contracting Party Countries (CPCs), for example, by ensuring that all relevant vessels are equipped with Vessel Monitoring Systems (VMS)
- Finalize the **mapping of the DSF fishing grounds**
- Ensure the **regular reporting of VME Indicators** (both fishery-independent and fishery-dependent) from all CPCs
- Establish a **scientific observer programme on DSF**
- Make the technical protocols for the protection of VMEs in the GFCM area of application a **binding instrument**
- Account for a **changing climate**: climate change network



Thank you for your attention

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 www.fao.org/gfcm