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Videoconference, 10-11 June 2026

Agenda Item 5: Ecological Objective 3 (Fisheries): Status of progress and technical updates

Comparative analysis of the GFCM and IMAP reporting frameworks on commercial fisheries and incidentally caught vulnerable species in the Mediterranean.

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SPA/RAC
Tunis, 2026

Note by the Secretariat

This document has been prepared within the framework of the GEF FishEBM MED project "Fisheries and ecosystem-based management for the blue economy of the Mediterranean", funded by the Global Environment Facility (GEF) through a partnership between the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Environment Programme (UNEP), and executed by the General Fisheries Commission for the Mediterranean (GFCM) and the Mediterranean Action Plan (MAP) under the Barcelona Convention, through the Specially Protected Areas Regional Activity Centre (SPA/RAC).

The document entitled "Comparative Analysis of the GFCM and IMAP Reporting Frameworks on Commercial Fisheries and Incidentally Caught Vulnerable Species in the Mediterranean" presents a comparative analysis of the data collection and reporting frameworks developed under the GFCM and the Integrated Monitoring and Assessment Programme (IMAP) of the Barcelona Convention, specifically concerning Ecological Objective 3 (EO3) – Harvest of Commercially Exploited Fish and Shellfish.

The analysis focuses on the six EO3 Common Indicators related to spawning stock biomass, total landings, fishing mortality, fishing effort, catch per unit of effort (CPUE/LPUE), and bycatch of vulnerable and non-target species. The document evaluates how fisheries-related data are collected, managed, reported and applied under the GFCM Data Collection Reference Framework (DCRF), and assesses their relevance for Good Environmental Status (GES) assessments under IMAP.

The document highlights that the GFCM DCRF currently represents the most comprehensive and operational framework for fisheries-related data collection in the Mediterranean, particularly for Common Indicators CI7 (Spawning Stock Biomass), CI8 (Total Landings), and CI9 (Fishing Mortality), for which harmonized methodologies have already been jointly developed by GFCM and SPA/RAC and applied in the Mediterranean Quality Status Report (Med QSR 2023).

The report further examines the current status of indicators CI10 (Fishing Effort), CI11 (CPUE/LPUE), and CI12 (Bycatch of Vulnerable and Non-target Species), noting that methodological development is still ongoing despite important progress achieved through initiatives such as the MedBycatch project and the development of standardized bycatch monitoring protocols and regional databases.

The comparative analysis underlines the complementary institutional mandates of GFCM and SPA/RAC and stresses the importance of strengthening coordination between fisheries management and environmental monitoring frameworks in order to avoid duplication of reporting efforts and improve regional coherence. The document also discusses issues related to data accessibility, confidentiality, harmonization of methodologies, interoperability of systems, and the need for enhanced technical support to Mediterranean countries.

The document concludes with recommendations aimed at reinforcing cooperation between GFCM, SPA/RAC and relevant partners, maintaining the DCRF as the primary reporting mechanism for EO3 indicators, further harmonizing methodologies for CI10–CI12, operationalizing regional bycatch databases, and improving integration of fisheries data into IMAP-related GES assessments under the Barcelona Convention.

The document is hereby presented to the Meeting of the Ecosystem Approach Correspondence Group on Monitoring (CORMON) Biodiversity and Fisheries for information. The document is currently available only in English.

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COMPARATIVE ANALYSIS OF THE GFCM AND IMAP REPORTING FRAMEWORKS ON COMMERCIAL FISHERIES AND INCIDENTALLY CAUGHT VULNERABLE SPECIES IN THE MEDITERRANEAN

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List of acronyms

CI	Common Indicator
COP	Conference of the Parties
CORMON	Correspondence Group on Monitoring
CPUE	Catch per unit of effort
DCRF	Data Collection Reference Framework
EO	Ecological Objective
FAO	Food and Agriculture Organization of the United Nations
FMSY	Fishing mortality rate of maximum sustainable yield
GES	Good Environmental Status
GFCM	General Fisheries Commission for the Mediterranean
GSA	Geographical subarea
IMAP	Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria
INFO/RAC	Regional Activity Centre for Information and Communication (of UNEP/MAP)
IUCN	International Union for Conservation of Nature
IUCN Med	IUCN Centre for Mediterranean Cooperation
LPUE	Landing per unit of effort
MAP	Mediterranean Action Plan
MEDASSET	Mediterranean Association to Save the Sea Turtles
Med QSR	Mediterranean Quality Status Report
MSY	Maximum sustainable yield
SAC	Scientific Advisory Committee in Fisheries
SAF	Stock Assessment Forms
SoMFi	State of Mediterranean and Black Sea Fisheries
SPA/RAC	Special Protected Areas Regional Activity Centre (of UNEP/MAP)
SSB	Spawning Stock Biomass
SSBMSY	Spawning Stock Biomass producing Maximum Sustainable Yield
STECF	Scientific, Technical and Economic Committee for Fisheries
UNEP	United Nations Environmental Program
WGBS	Working Group on the Black Sea
WGSAD	Working Group on Stock Assessment of Demersal Species
WWF	World Wildlife Fund

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About the author

Ana Štrbenac, Mag. Biol. (Ecology), M.Sc. in Management of Protected Areas, is an international nature conservation expert with extensive knowledge and experience in strategic planning for regional organizations (e.g. SPA/RAC, MedPAN), management planning for protected areas (including Natura 2000 sites), and the practical application and assessment of nature conservation legislation and policies. She has conducted biodiversity status assessments, with a focus on the Barcelona Convention's IMAP–GES assessments, and has been actively involved in regional, EU, and international cooperation.

Ana Štrbenac began her career in Croatian governmental and expert institutions for nature conservation, where she played a key role in building the national conservation framework, notably as Acting Director and head of the Expertise Division of the former State Institute for Nature Protection. She also represented Croatia in several international and regional nature conservation agreements, including serving as Chair of ACCOBAMS, and contributed to the Croatia's accession to the EU..

Ana Štrbenac now works as a consultant through her company, Stenella consulting Ltd (www.stenella-consulting.hr). She has advised numerous international and national organizations, including UNEP/MAP (SPA/RAC and PAP/RAC), GIZ, ACCOBAMS, IUCN, WWF, EUSAIR, MedPAN, MedWet, BirdLife, OceanCare, and Croatian ministries for nature conservation, fisheries, and rural development.

Among her key international projects are the assessment of the status of cetaceans for the 2023 Mediterranean Quality Status Report (Med QSR), a comparative analysis of GES assessments under the MSFD and IMAP, initial national IMAP–GES assessments for Albania and Montenegro, application of the NEAT methodology for IMAP–GES assessments in the Adriatic, contributions to the development of the Post-2020 SAP BIO, the updated MedPAN Strategy 2026–2030, and various other evaluations, including assessments of both the original and Post-2020 SAP BIO, as well as analyses of different aspects of the Common Fisheries Policy, particularly bycatch issue.

Executive summary

This report presents a comparative analysis of the data collection and reporting frameworks of the General Fisheries Commission for the Mediterranean (GFCM) and the Integrated Monitoring and Assessment Programme (IMAP) under the Barcelona Convention, specifically in relation to the Common Indicators under Ecological Objective 3 (EO3) – *Harvest of Commercially Exploited Fish and Shellfish*. The focus is on evaluating the availability and applicability of fisheries and bycatch data for assessing Good Environmental Status (GES) in the Mediterranean.

The IMAP Info System is the official platform for reporting and monitoring under the Integrated Monitoring and Assessment Programme (IMAP) of the Barcelona Convention. It ensures the harmonized submission, management and visualization of data provided by Mediterranean countries for the different Ecological Objectives. However, modules specific to EO3 are not yet developed, which currently prevents the structured submission and integration of indicators related to the sustainable use of marine living resources.

The GFCM's Data Collection Reference Framework (DCRF) emerges as the most comprehensive and standardized system for collecting data relevant to EO3. For Common Indicators CI7 (Spawning Stock Biomass), CI8 (Total Landings), and CI9 (Fishing Mortality), a joint methodology has already been established by GFCM and SPA/RAC and is being used in regional assessments such as the 2023 Mediterranean Quality Status Report (Med QSR). Indicators CI10 (Fishing Effort), CI11 (Catch or Landings per Unit of Effort), and CI12 (Bycatch of Vulnerable and Non-target Species) are still under development in terms of standardized methodologies, though significant progress has been made for CI12 through the MedBycatch project.

This report underscores the importance of institutional coordination, especially between GFCM and SPA/RAC, and highlights the need to avoid duplicative reporting. It identifies key areas of synergy and divergence between IMAP and GFCM systems and offers concrete recommendations for enhanced alignment, improved data standardization, and collaborative efforts toward comprehensive regional GES assessments. The report recommends that IMAP continue to rely on the DCRF for EO3 data and ensure that any integration into the IMAP Info System is done through formal linkages with the GFCM. Data confidentiality, country ownership, and harmonized methods are key principles guiding this cooperation. Acknowledging current gaps in data coverage, accessibility, and national capacities, the report calls for enhanced support to countries and the operationalization of regional databases.

1 INTRODUCTION

The Integrated Monitoring and Assessment Programme (IMAP) of the Barcelona Convention's Ecosystem Approach, adopted in 2016 (Decision IG.22/7, COP 19, Athens, Greece, February 2016), establishes a comprehensive framework for integrated monitoring and assessment of biodiversity and fisheries, pollution and marine litter, as well as coastal and hydrographic conditions. IMAP is based on eleven Ecological Objectives and associated 23 regionally agreed common indicators and four candidate indicators, for which scientific knowledge and data collection continue to advance in support of regional monitoring and assessment.

One of the Ecological Objectives is related to fisheries; Ecological Objective 3 (EO3) - Harvest of commercially exploited fish and shellfish, and associated six Common Indicators (**Table 1**)

Table 1. Ecological Objective 3 and its Common Indicators. Source: UNEP/MAP, 2023

Ecological Objective	IMAP indicators
EO 3 Harvest of commercially exploited fish and shellfish	
Populations of selected commercially exploited fish and shellfish are within biologically safe limits, exhibiting a population age and size distribution that is indicative of a healthy stock	**Common Indicator 7**: Spawning stock Biomass
	Common Indicator 8: Total landings
	Common Indicator 9: Fishing Mortality
	Common Indicator 10: Fishing effort
	Common Indicator 11: Catch per unit of effort (CPUE) or landing per unit of effort (LPUE) as a proxy
	Common Indicator 12: Bycatch of vulnerable and non-target species

In 2017 guidance factsheets were developed for each Biodiversity and Fisheries Common Indicator to ensure coherent monitoring, with specific targets defined and agreed in order to deliver the achievement of Good Environmental Status (GES) (UNEP(DEPI)/MED WG.444/6/Rev.1).

The Barcelona Convention Contracting Parties have been developing IMAP-based national monitoring programmes to implement all Ecological Objectives at the national level. Monitoring for each Common Indicator involves generating data and information at national level, that further support regional-level assessments. Based on the individual EO regional-level assessments, an integrated assessment of the state of the Mediterranean Sea and coast is conducted and reflected in the Quality Status Reports (Med QSRs), which are issued regularly. So far, two such reports have been published: Med QSR 2017 and Med QSR 2023.

Data collection is the critical part of GES assessment. Simply put, without sufficient data, no methodology can be applied to assess GES.

IMAP Compatible Data and Information System (IMAP Info System), being developed by INFO/RAC, aims to collect, manage and share data for monitoring programmes under the IMAP, within the framework of the Barcelona Convention. At present, IMAP Info System allows the Contracting Parties to report data for 18 IMAP Common Indicators, including for Candidate Common Indicator 24, through 30 Information standards (UNEP/MED WG.606/10). The IMAP Info System currently does not include fisheries-related data for EO3. This is not due to a gap in implementation but reflects the institutional arrangement whereby the GFCM is entrusted with data collection and management in this domain

Regarding EO3, the complete set of main fishery indicators adopted to assess the status of Mediterranean stocks, as well as their temporal trends, is reported in the 22nd SAC Report (FAO, 2021).

A common methodology has already been developed for CI7 – Spawning Stock Biomass (SSB), CI8 – Total Landings (TL), and CI9–Fishing Mortality (F) and/or Exploitation Rate (E) (GFCM, 2017).

This methodology has been discussed during several meetings of the UNEP/MAP technical bodies, including: the meeting of the Correspondence Group on Monitoring (CORMON), Biodiversity and Fisheries (UNEP/MAP, 2017a), the 6th meeting of the Ecosystem Approach Coordination Group (UNEP/MAP, 2017b) and the 11th Meeting of the Ecosystem Approach Coordination Group (UNEP/MAP, 2024). The update of the 2017 IMAP EO3 guidance factsheet will be done in the next biennium for CI7, CI8 and CI9 by the GFCM in coordination with SPA/RAC and considering the State of Mediterranean and Black Sea Fisheries 2025 (SoMFi 2025).

Indicators CI10 – Fishing Effort, and CI11 – Catch per Unit of Effort, are currently non-mandatory and pending updates for regular common monitoring. CI12 – Bycatch of Vulnerable and Non-Target Species (relevant to EO1 and EO3) may be updated in the next biennium, building on recent methodological developments. Specifically, GFCM has developed a standardized protocol titled Monitoring Incidental Catch of Vulnerable Species in Mediterranean and Black Sea Fisheries: Methodology for Data Collection (FAO, 2019) and is developing a regional bycatch database as well as a GFCM Regional Platform on Selectivity, Vulnerable Species and Decarbonization.

The DCRF is the main GFCM's system for standardized submission of fisheries-related data from its member countries. Countries are required to report data specifically for their respective Geographical Subareas (GSAs). There are 4 GFCM Subregions in the Mediterranean and 27 associated subareas (**Annex 1**).

DCRF is based on seven different tasks or data components gathering data on global figures of national fisheries, catch, incidental catch of vulnerable species, fishing fleet, fishing effort, socioeconomics and biological information. Based on this information, the GFCM reports the overall status and trends of Mediterranean stocks in its biennial State of Mediterranean and Black Sea Fisheries report (SoMFi). It should be noted that SoMFi covers a broader fisheries scope than the EO3 indicators.

The assessment of CI7, CI8, and CI9 is provided by the GFCM as an integral part of the Mediterranean Quality Status Report (Med QSR), under the status of EO3 – Harvest of Commercially Exploited Fish and Shellfish, drawing on data from the most recently published SoMFi. The status of incidental catch of vulnerable species (CI12) is also included in SoMFi,

While IMAP provides the overarching environmental assessment framework, the collection and validation of fisheries data relevant to EO3 is institutionally led by the General Fisheries Commission for the Mediterranean (GFCM). The GFCM's DCRF serves as the primary reporting and coordination mechanism for fisheries data, harmonized across member countries. It is currently the most suitable and operational framework for EO3, offering standardized methods, strong institutional support, and confidentiality protections that foster national trust and engagement.

This report has been prepared within the framework of the FishEBM MED project (2023–2026), which supports the implementation of ecosystem-based fisheries management and aims to strengthen national and regional capacities for monitoring and achieving GES. By comparing the GFCM and IMAP frameworks, the report highlights pathways to improved alignment of monitoring efforts, better data integration, and more robust regional marine environmental assessments.

2 COMPARATIVE ANALYSIS

The assessment of the EO3 Common Indicators under IMAP primarily relies on regular and standardized data collection and analysis, conducted within the framework of the GFCM. Hence, this analysis seeks to elaborate on the existing GFCM reporting system—the DCRF—and determine whether it meets the requirements and parameters relevant to the IMAP/GES assessment.

As previously mentioned, a common methodology was agreed upon between the GFCM and SPA/RAC for monitoring and measurement of Indicators CI7, CI8, and CI9. However, this process has not yet been concluded for CI10, CI11, and CI12, even though related data are being collected to some extent. A summary of the main information—what is measured for each specific Common Indicator, how the data are collected, their availability, and their application—is provided in **Table 2**.

Relevant fisheries data reported under GFCM's DCRF are reported by countries for their respective GFCM Geographical Subareas (GSAs) (**Annex 1**). Countries covering two or more GSAs are required to report data for each GSA.

Table 2. Comparative analysis summary table

CI	What is Measured	Data collection frequency	Data Availability	Data Application – main regional documents
CI7: Spawning Stock Biomass (SSB)	Total biomass of sexually mature individuals in a fish stock, indicating reproductive capacity and risk of recruitment overfishing	• Data reported through the GFCM DCRF, Task VII (stock assessment inputs: growth, length, maturity, biomass) [1] • Data submitted via Stock Assessment Forms (SAFs) by all GFCM member countries • Mandatory annual reporting by all countries operating in the GFCM area via DCRF online one month in advance of the GFCM relevant meetings	• Validated SAF data available online via GFCM webpage (by country, GSA, species) • Preview and download as PDF in the scope of different reports (see data application – main documents)	• MedQSR (regional IMAP/GES assessment) • SoMFi
CI8: Total Landings	Total quantity of marine biological resources landed by fishing vessels	• Data reported through the GFCM DCRF: Task I (global figures),	• Aggregated/summary data in SAC, STECF, SoMFi, WGBS, WGSAD reports	

[1] This submission follows a dual pathway: (1) official submission through the DCRF online platform and (2) expert submissions submitted either by email or via dedicated SharePoint pages

CI	What is Measured	Data collection frequency	Data Availability	Data Application – main regional documents
	(includes target and bycatch species), indicating sustainable exploitation levels	Subtask II.1 (landing data by fleet/area), Subtask II.2 (catch data per species) • Mandatory annual reporting by all countries operating in the GFCM area via DCRF online by May 31 (Task I), June 30 (Subtasks II.1, II.2) for previous year	• Full datasets restricted to GFCM bodies and national focal points	
CI9: Fishing Mortality (F)	Rate at which fish are removed from a stock by fishing (number or biomass lost per year); key for assessing overfishing	• Data reported through the GFCM DCRF: Task VII (Stock Assessment Forms: F, SSB, recruitment), Subtask II.2 (catch), Task V (effort) • Data from both fishery-dependent and independent sources • Mandatory annual reporting by all countries operating in the GFCM area via DCRF online by June 30 (Subtask II.2, Task V) for previous year and one month in advance of the GFCM relevant meetings (SAF)	• Aggregated/summary data in SAC, STECF, SoMFi, WGBS, WGSAD reports • Full datasets restricted to GFCM bodies and national focal points	
CI10: Fishing Effort	Amount of fishing activity exerted (e.g., vessel capacity, days at sea, gear used); proxy for fishing pressure	• Data reported through the GFCM DCRF: Task V (fishing effort by GSA, fleet segment -subtask V.1, gear - subtask V.2, CPUE - subtask V.3) • Data Sources from logbooks,	• Aggregated/summary data in certain GFCM technical reports • Full datasets restricted to GFCM bodies and national focal points	• Future MedQSR (regional IMAP/GES assessments)*

CI	What is Measured	Data collection frequency	Data Availability	Data Application – main regional documents
		sampling, census, port surveys • Mandatory annual reporting by all countries operating in the GFCM area via DCRF online, by June 30 for previous year		
CI11: Catch per Unit of Effort (CPUE) / Landing per Unit of Effort (LPUE)	Biomass caught per unit of effort (e.g., kg per hook-day); indicator of stock abundance and fishing efficiency	• Data reported through the GFCM DCRF: Subtask V.3 (CPUE by GSA, gear, species, capacity, nominal effort) • Mandatory annual reporting by all countries operating in the GFCM area via DCRF online, y 30 June for previous year	• Aggregated/summary data in certain GFCM technical reports • Full datasets restricted to GFCM bodies and national focal points	
CI12: Bycatch of Vulnerable and Non-Target Species	Incidental catch of non-target and vulnerable species (e.g., marine mammals, turtles, seabirds, sharks, rays)	• Data reported through the GFCM DCRF: Task III (incidental catch of vulnerable species) • Mandatory annual reporting by all countries operating in the GFCM area via DCRF online, by July 31 for previous year • Sporadically through different projects, e.g. MedBycatch project and its Pan-Mediterranean database (operational at least until the end of this project – 2022)	• Sporadic reports, such as 2017 – 2022 MedBycatch project outputs/reports, as well as developed Pan-Mediterranean bycatch database • Operalization of the regional bycatch database is in progress • Full datasets restricted to GFCM bodies and national focal points	

* Since there is no fully agreed IMAP/GES assessment methodology, the Med QSR 2023 did not include data relevant to CI10, CI11, or CI12. However, as methodological discussions progress and depending on further

developments at GFCM level, the GFCM may consider including assessments for the CI10–CI12 indicators in MedQSR, should their reporting be incorporated into future SoMFi editions.

2.1 Common indicator 7 – Spawning Stock Biomass

2.1.1 What is measured?

SSB measures the total biomass (weight) of sexually mature individuals in a fish stock capable of reproducing during a given year. The SSB is available through stock assessment so not all species will have this information. It is a critical indicator for assessing reproductive capacity and detecting recruitment overfishing, which occurs when excessive fishing reduces the stock's ability to replenish itself (*IMAP2017*). Under the IMAP framework, achieving Good Environmental Status (GES) requires SSB to equal or exceed **SSBMSY** (the biomass level capable of producing Maximum Sustainable Yield - MSY[2]) (**Table 3**).

Monitoring SSB is crucial for sustainable fisheries management. By maintaining SSB at appropriate levels, fisheries managers aim to ensure stocks have enough reproductive potential to sustain themselves and support long-term fishery yields.

Table 3. Relevant GES definition, operational objective and proposed target for the CI7 – Spawning stock biomass. Source: UNEP/MED, 2017

Relevant GES definition	Related Operational Objective	Proposed target(s)
Achieving or maintaining good environmental status requires that SSB[3] values are equal to or above SSBMSY[4], the level capable of producing maximum sustainable yield (MSY).	The Spawning Stock Biomass is at a level at which reproduction capacity is not impaired	State/-B>B_{thr}[5]

2.1.2 Species

Priority species considered for the evaluation for this indicator include commercially exploited demersal and small pelagic fish, such as European hake (*Merluccius merluccius*), red mullet (*Mullus barbatus*), and anchovy (*Engraulis encrasicolus*) (**Annex 2 – Groups 1, 2 and 3**), as reported in Appendix B of the GFCM-DCRF.

2.1.3 Data collected

Relevant data are reported through the GFCM (DCRF).

[2] The Maximum Sustainable Yield (MSY) is widely recognized and considered the most important measure of the sustainable catch that can be landed over a given period. MSY is determined by assessing the annual increase in stock biomass through recruitment and growth, then subtracting natural mortality.

[3] Spawning Stock Biomass

[4] The spawning stock biomass that can produce maximum sustainable yield.

[5] Indicator's ideally threshold

The DCRF gathers essential biological and fishery data for estimating SSB, primarily through Task VII, which covers stock assessment inputs such as growth, length, maturity, and biomass for priority species. These data, combined with catch and effort information, are submitted via Stock Assessment Forms (SAFs), which are standardized templates used across the GFCM area.

The SAC and WGBS annually identify which species or stocks require assessment, based on criteria like commercial importance, data availability, ecological relevance, and whether stocks are shared among countries.

All GFCM member countries are required to provide mandatory data-including fisheries-dependent data – e.g. catch-related and effort-related quantities – at the very minimum, and any kind of data, such as fishing gear, fleet description, historical trends and biological parameters of growth and maturity, as well as a series of reference points such as Spawning Stock Biomass.

When countries report to the GFCM via the DCRF, they are required to report data specifically for their respective GSAs. If a country covers two or more GSAs, they are required to report for all GSAs.

Countries should transmit the stock assessment form for the requested species, pertaining to year n-1, one month in advance of the GFCM relevant meetings on stock assessment of each calendar year. Therefore, the date of data transmission may differ from year to year according to the scheduling of these meetings.

2.1.4 Data availability

Relevant data reported through SAFs, and then validated by the GFCM Scientific Advisory Committee on Fisheries (SAC), is available online through GFCM webpage. This includes SAF data for demersal and small pelagic species and can be filtered by country, GSA, and species. For each reporting year SAF is available for preview and download as PDF document.

2.2 Common Indicator 8 - Total landings

2.2.1 What is measured?

Catch refers to the total quantity of marine biological resources brought on board by fishing vessels, encompassing both the targeted species (landed fraction) and bycatch, which includes target andnon-target species (i.e. discards) with or without commercial value *(IMAP, 2017*) and incidental catch of vulnerable species. Ensuring healthy stocks of selected commercially exploited fish and shellfish is essential for achieving GES under the indicator CI8. This means that the total catch of selected commercial species does not exceed the Maximum Sustainable Yield (MSY), and bycatch is reduced (**Table 4**). Monitoring landings is essential for tracking trends in fish populations and the overall status of fisheries. This indicator is fundamental for determining sustainable exploitation levels, calculating MSY and measuring total fishing pressure on marine ecosystems, including illegal, unreported, and unregulated (IUU) catches and discards.

Table 4. Relevant GES definition, operational objective and proposed target for the CI8 – Total landings. Source: UNEP/MED, 2017

Relevant GES definition	Related Operational Objective	Proposed target(s)
Populations of selected commercially exploited fish and shellfish are within biologically safe limits, exhibiting a population age and size distribution that is indicative of a healthy stock.	Total catch of commercial species does not exceed the Maximum Sustainable Yield (MSY) and the by-catch is reduced.	**State:** -Long-Term High Yields -Catch < MSY **Pressure:** -Reduction of IUU catch -Minimization of discarding and incidental catch of vulnerable species

2.2.2 Species

Priority species considered for the evaluation for this indicator include commercially exploited demersal and small pelagic fish (**Annex 2 – Groups 1, 2 and 3**) as reported in Appendix B of the GFCM-DCRF, as well as vulnerable species (**Annex 3)**.

2.2.3 Data collected

The total landing data are also reported through the DCRF, based on the following tasks and subtasks:

Task I (Global Figures of National Fisheries) requires each country to report its total annual landings. The purpose of this task is to provide a comprehensive overview of national fisheries by summarizing total fleet capacity and landings. All countries operating within the GFCM area are required to participate in this reporting. Specifically, countries must submit mandatory data on total landings (by weight, in tonnes), the number of active fishing vessels, total fleet capacity (in gross tonnage), and engine power (in kilowatts) using the DCRF online platform, by May 31 each year for the previous calendar year.

Subtask II.1 (Landing Data) collects detailed landing information by fleet segment and GSA. This subtask requires all countries operating in the GFCM area to report the total weight of all landed species by fleet segment and fishing area, along with the number of active fishing vessels. Data should be reported by country and geographical subarea (GSA) and can be sourced from logbooks, sales notes, sampling, or interviews. To improve sampling efficiency, fleet segments with similar exploitation patterns or targeting the same population group may be merged, pending approval from relevant GFCM bodies.

Countries submit data through the DCRF online platform; data for the previous year must be submitted by June 30 each year.

Subtask II.2 (Catch Data per Species) gathers catch information for main commercial species by fleet segment and GSA. All countries operating in the GFCM area are required to report the total annual catch (in weight) for each main commercial species, broken down by fishing area (GSA) and fleet

segment. This total includes both landed catch and discards. If discard data are available, they should be reported by fleet segment and species (mandatory only for fleet segments where the discard rate exceeds 10% of the total catch for that segment in a given area).

Countries submit data through the DCRF online platform; data for the previous year must be submitted by June 30 each year.

2.2.4 Data availability

The total landing data reported through DCRF are partially accessible to the public, but with certain limitations due to data confidentiality policies. This means that while not all raw data are openly accessible, summary statistics and aggregated data are available through reports such as SAC session reports; Scientific, Technical and Economic Committee for Fisheries (STECF) Fisheries Dependent Information reports; SoMFi as well as the GFCM Working Group on the Black Sea (WGBS) and Working Group on Stock Assessment (WGSA) Reports. The full, detailed datasets submitted by countries are not openly downloadable; however, they are primarily accessible to GFCM subsidiary bodies, scientific experts, and national focal points, following strict confidentiality protocols.

2.3 Common Indicator 9 - Fishing Mortality

2.3.1 What is measured?

Fishing mortality (F) is a key metric in stock assessments, representing the rate at which fish are removed through fishing, measured either as the number of individuals or the biomass lost. As such, it is a critical determinant of stock sustainability. Fishing mortality is typically estimated using stock assessment models that incorporate catch data, fishing effort, and species-specific biological parameters.

The operational objective to support IMAP/GES under Indicator CI9 is to maintain fishing mortality at or below the level that allows a stock to produce its Maximum Sustainable Yield (FMSY) (**Table 5**). Comparing the current fishing mortality (F_{current}) to the target reference point (F_{MSY}) provides insight into whether a stock is being overfished or harvested sustainably.

By keeping fishing mortality at appropriate levels, fisheries managers aim to prevent overfishing and ensure healthy fish populations that can support sustainable fisheries over the long term.

Table 5. Relevant GES definition, operational objective and proposed target for the CI9 – Fishing mortality. Source: UNEP/MED, 2017

Relevant GES definition	Related Operational Objective	Proposed target(s)
Populations of selected commercially exploited fish and shellfish are within biologically safe limits, exhibiting a population age and size distribution that is indicative of a healthy stock	Fishing mortality in the stock does not exceed the level that allows MSY (F≤ FMSY).	**Pressure:** -FMSY -F0.1 a proxy of FMSY (more precautionary)

2.3.2 Species

Priority species considered for the evaluation for this indicator include commercially exploited demersal and small pelagic fish, such as European hake (*Merluccius merluccius*), red mullet (*Mullus barbatus*), and anchovy (*Engraulis encrasicolus*) (**Annex 2 – Group 1, 2 and 3**), as reported in Appendix B of the GFCM-DCRF.

2.3.3. Data collected

The fishing mortality (F) data are also reported through the GFCM-DCRF, via a structured process involving multiple steps, tasks and subtasks:

Step 1. Task VII: Biological Information (Subtask VII.1 – Stock Assessment Input Data)

Countries submit SAFs containing biological and fishery-dependent data, including fishing mortality (F), SSB, recruitment, and exploitation rates. Mandatory parameters include growth, maturity, catch, effort, and fishing mortality estimates from validated stock assessments (e.g., virtual population analysis, statistical catch-at-age models). Data sources include fishery-dependent (catches, effort) and independent (surveys) data.

Step 2. Integration with Catch and Effort Data

Task II (Catch) - Subtask II.2 reports total catch data (landings + discards) by species, fleet segment, and GSA, which feeds into fishing mortality calculations.

Task V (Fishing Effort): Effort metrics (e.g., days fished, gear type) are reported by fleet segment and gear, enabling fishing mortality estimation through models like CPUE.

Step 3. Ecosystem Indicators (Subtask VII.7)

Fishing mortality is monitored as part of a common set of ecosystem indicators to evaluate stock sustainability and management effectiveness.

2.3.4 Data availability

As with CI8 related data, fishing mortality data reported through the DCRF are partially accessible to the public, but access is limited due to data confidentiality policies. Hence, the raw datasets are not

fully available to the public. Instead, summary statistics and aggregated information are provided through publicly available GFCM reports such as the SAC session reports the State of Mediterranean and Black Sea Fisheries (SoMFi) publication, as well as reports from the GFCM Working Group on the Black Sea (WGBS) and the Working Group on Stock Assessment (WGSA). The complete, detailed datasets submitted by countries are not publicly downloadable; however, they are primarily granted to GFCM subsidiary bodies, scientific experts, and national focal points, in accordance with strict confidentiality protocols.

2.4 Common Indicator 10: Fishing effort

2.4.1 What is measured?

Fishing effort refers to the amount of time and/or fishing capacity (such as gross tonnage) used to harvest fish. Measuring fishing efforts provides insight into the pressure exerted by fishing activities on fish stocks, as well as on components of marine biodiversity, such as seafloor integrity (EO6), marine food webs (EO4).

Fishing effort is typically expressed as a combination of vessel capacity (e.g. gross tonnage, engine power) and activity (e.g. days at sea, number of hooks). Common measures include number of vessels, days at sea, hours fished, length of nets, etc. Effort data allows managers to assess fishing pressure and track changes in fleet dynamics over time. When combined with catch data, effort can be used to calculate CPUE, an important indicator of stock abundance (see CI11).

Under IMAP/GES, total fishing effort must not exceed the level that allows for MSY. At the operational level, this effort must be progressively reduced through multi-annual management plans until there is evidence of stock recovery (**Table 6**).

Monitoring fishing effort is essential for understanding the impacts of fisheries on stocks and ecosystems, and for developing effective, science-based management measures to support sustainable fisheries.

Table 6. Relevant GES definition, operational objective and proposed target for the CI10 – Fishing effort. Source: UNEP/MED, 2017

Relevant GES definition	Related Operational Objective	Proposed target(s)
Total effort does not exceed the level of effort allowing the Maximum Sustainable Yield (MSY).	Fishing effort should be reduced by means of a multi-annual management plan until there is evidence for stock recovery.	(under development)

2.4.2 Species

GFCM reports CPUE data by fishing gear and by established nominal effort, for the identified species belonging to Group 1 and Group 2, as reported in Appendix B of the GFCM-DCRF (**Annex 2).**

2.4.3 Data collected

The GFCM-DCRF–reports effort data through **Task V (Fishing Effort),** which focuses on gathering standardized data on fishing effort by combining vessel capacity, gear, and time spent fishing.

Fishing effort is typically calculated by multiplying the deployed fishing capacity (such as gross tonnage, engine power, or number of hooks) by the time spent fishing (hours or days). Data sources include logbooks, sampling, census, and port surveys. As already mentioned, effort data are combined with catch data to calculate CPUE (see CI11).

All GFCM member countries are required to report:

- Standardized effort data by GSA and fleet segment (e.g., capacity and activity such as fishing days) through the DCRF online platform.
- Fishing days by gear and CPUE by species and gear for priority species groups.
- For the Adriatic Sea (GSAs 17 and 18), specific effort data by gear and length class are also required.

Data must be submitted annually (for the previous year) by June 30. Task V is divided into subtasks covering effort by fleet segment, fishing gear, CPUE, and specific requirements for the Adriatic Sea.

2.4.4 Data availability

As with other relevant data, fishing effort data reported by the GFCM through the DCRF are partially accessible to the public, but with certain limitations due to data confidentiality policies. Not all raw data are openly available; instead, summary statistics and aggregated information are shared through certain GFCM technical reports. The complete, detailed datasets submitted by countries are not publicly downloadable; however, these are primarily accessible to GFCM subsidiary bodies, scientific experts, and national focal points, under strict confidentiality protocols.

2.5 Common Indicator 11: Catch per unit of effort (CPUE) or landing per unit of effort (LPUE) as a proxy

2.5.1 What is measured?

CPUE is a key indicator of fish stock abundance, offering insights into relative population trends. It reflects fishing efficiency by measuring the biomass caught per unit of effort (e.g., kilograms per hook-day). A declining CPUE may indicate overfishing, while stable levels could suggest sustainable fishing practices. Achieving a stable or increasing CPUE is the main operational objective in support of IMAP/GES. (**Table 7**).

Monitoring fishing effort intensity and spatial distribution is critical for assessing fisheries impacts.

Table 7. Relevant GES definition, operational objective and proposed target for the CI11 – Catch per unit of effort (CPUE) or landing per unit of effort (LPUE) as a proxy. Source: UNEP/MED, 2017

Relevant GES definition	Related Operational Objective	Proposed target(s)
Catch per unit effort (CPUE) is an indirect measure of the abundance of target species. Changes in the catch per unit effort are inferred to signify changes to the target species' abundance.	Stable or positive trend in CPUE Declines in CPUE may mean that the fish population cannot support the level of harvesting. Increases in CPUE may mean that a fish stock is recovering and more fishing effort can be applied.	(under development)

2.5.2 Species

Priority species considered for the evaluation for this indicator include commercially exploited demersal and small pelagic fish, such as European hake (*Merluccius merluccius*), red mullet (*Mullus barbatus*), and anchovy (*Engraulis encrasicolus*) (**Annex 2 – Group 1, 2**), as reported in Appendix B of the GFCM-DCRF.

2.5.3 Data collected

The GFCM-DCRF reports CPUE data through **Subtask V.3 (Fishing effort – CPUE)**. Data is submitted and reported by all GFCM member countries and mandatory data includes GSA, fishing gear, species, capacity (by fishing gear), activity (by fishing gear), nominal effort (by fishing gear) and the CPUE value per species and per fishing gear in the reference year. CPUE is calculated as the ratio between total catch (in tonnes) and nominal effort by gear.

2.5.4 Data availability

The availability of relevant data is consistent with that of CI10 data (see section 2.4).

2.6 Common Indicator 12: Bycatch of vulnerable and non-target species (EO1 and EO3)

2.6.1 What is measured?

Bycatch refers to the unintended capture of species during fishing operations, encompassing both non-target commercial species and non-commercial species, as well as individuals that cannot be landed, such as undersized or damaged fish. A specific subset of bycatch is the incidental catch of vulnerable species-such as marine mammals (cetaceans), sea turtles, seabirds, and elasmobranchs.

This indicator focuses on monitoring the incidental catch rates of sea turtles, marine mammals, elasmobranchs, and seabirds, analysing trends in their occurrence, distribution, and abundance to assess the impact of fishing activities on these vulnerable groups and the broader marine ecosystem.

Reducing bycatch is essential for the long-term health of marine resources and coastal communities. Accordingly, the operational objective is to minimize the incidental catch of vulnerable species to ensure the achievement of the IMAP/GES, as reflected in stable abundance and trends of vulnerable species populations (**Table 8**).

Monitoring bycatch is crucial; however, comprehensive and consistent data—particularly concerning vulnerable species—remain limited across the Mediterranean and Black Sea.

Table 8. Relevant GES definition, operational objective and proposed target for the CI12 - Bycatch of vulnerable and non-target species. Source: UNEP/MED, 2017

Relevant GES definition	Related Operational Objective	Proposed target(s)
The abundance/trends of populations of seabirds, marine mammals, sea turtles and sharks key species (selected according to their actual and total dependence on the marine environment, and to their ecological representativeness) is stable or not reducing in a statistically significant way taking into account the natural variability compared to the current situation.	Incidental catch of vulnerable species (i.e. elasmobranchs, marine mammals, seabirds and turtles) is minimized	Work in progress within GFCM

2.6.2 Species

Vulnerable species considered for the evaluation for this indicator include vulnerable species (**Annex 3**), as reported in Appendix F of the GFCM-DCRF. This list is not fully aligned with the list of vulnerable species in the GFCM's 2019 standardized protocol *Monitoring Incidental Catch of Vulnerable Species in Mediterranean and Black Sea Fisheries: Methodology for Data Collection* (*FAO, 2019*). This protocol was developed within the framework of the MedBycatch project "*Understanding Mediterranean multitaxa bycatch of vulnerable species and testing mitigation – a collaborative approach*", which was implemented from 2017 – 2022. This project was run by GFCM in collaboration with several partners, such as SPA/RAC, ACCOBAMS, IUCN Med, BirdLife Europe and Central Asia, MEDASSET and WWF, and focussed on several Mediterranean countries (*FAO website, 2025*).

2.6.3 Data collected

The GFCM DCRF reports incidental catch data mainly through **Task III (Incidental Catch of Vulnerable Species)** and its subtasks, specifically focused on incidental catch of seabirds, sea turtles, seals, cetaceans, sharks and rays. Reporting obligation is addressed to all countries operating in the GFCM area of application and, among others, mandatory data includes the total number and weight of individuals caught, and whether they have been released alive, dead or in unknown status. Countries should transmit the data pertaining to previous year by 31st July of each calendar year for Subtask III or by 30th April for Subtasks III.1 (cetaceans), III.2 (seabirds), III.3 (sea turtles) and III.4 (elasmobranchs). It remains unclear whether or to which extent this effort—particularly the manner in which data are collected—is aligned with the aforementioned 2019 GFCM Protocol.

2.6.4 Data availability

Summary data on incidental catch reported by countries is mentioned in the scope of specific reports such as SoMFi. Detailed incidental catch data (e.g., species-specific incidental catch rates, fleet/gear impacts, or GSA-level tables) are primarily available through project-specific outputs, such as those from the aforementioned MedBycatch project, particularly its centralized repository-the Pan-Mediterranean multi-taxa bycatch database. Inclusion of bycatch data into the GFCM regional bycatch database is in progress (*UNEP/MED, 2025*). Raw bycatch data reported by countries through DCRF are primarily accessible to GFCM subsidiary bodies, scientific experts, and national focal points, under strict confidentiality protocols.

3 Conclusion and recommendations

The collection of relevant fisheries data and the subsequent assessment of Ecological Objective 3 (EO3) – *Harvest of Commercially Exploited Fish and Shellfish* – under the IMAP primarily rely on the GFCM and its Data Collection Reference Framework (DCRF), in line with any updates adopted by the GFCM. The DCRF provides the main structure through which data necessary for evaluating EO3 Common Indicators are gathered and reported.

The IMAP-Compatible Data and Information System (IMAP Info System), being developed by INFO/RAC under the scope of Barcelona Convention, aims to collect, manage, and share data for monitoring programmes under IMAP. However, this system does not currently cover data relevant to EO3 Common Indicators.

The institutional mandates of GFCM (fisheries data collection and management) and SPA/RAC (IMAP assessment) are complementary and should be reinforced to avoid duplication. Persistent challenges (inconsistent data coverage, limited accessibility, methodological harmonization) call for enhanced coordination, technical support to countries, and interoperable systems.

More specifically, data reported under the DCRF are well-aligned with the requirements for assessing EO3 under IMAP framework, particularly for Common Indicators CI7 (Spawning Stock Biomass), CI8 (Total Landings), and CI9 (Fishing Mortality). For these indicators, a common methodology has been developed and agreed upon between the GFCM and SPA/RAC. These indicators were also used as part of the 2023 Mediterranean Quality Status Report (Med QSR) to assess progress toward GES.

In the case of other indicators such as CI10 (Fishing Effort), CI11 (Catch Per Unit of Effort – CPUE, or Landings Per Unit of Effort – LPUE as proxies), and CI12 (Bycatch of Vulnerable and Non-target Species), data are also reported through the DCRF to some extent. However, unlike CI7 to CI9, a fully agreed common methodology for their collection and application within the IMAP/GES framework has not yet been finalized. Progress has nonetheless been made, particularly for CI12, through initiatives such as the MedBycatch project (2017–2022), which contributed to the standardization of monitoring protocols and data collection practices.

Another aspect to highlight is the species relevant for evaluation for specific Common Indicators. Specifically, GFCM focusses on priority species, which are defined and may be updated only by the GFCM SAC and WGBS, and/or on vulnerable species listed under GFCM-related resolutions and recommendations, corresponding to SPA/BD Annex II and III species. For CI12, all SPA/BD species as well as IUCN Red List species are considered. This shows that, although some discussions take place exclusively within either the GFCM or Barcelona Convention context, both Secretariats coordinate in line with their respective mandates, and Contracting Parties can further support coordination at the national level.

Generally, data reported through the DCRF are made available in the form of aggregated reports and technical documents, rather than as raw datasets. Access to raw data is typically limited to GFCM technical and governance bodies. Regarding incidental catch data specifically, the MedBycatch project led to the development of the Pan-Mediterranean multi-taxa bycatch database, intended to serve as a centralized repository. However, this database is not yet fully operational, limiting its current utility for regional assessments.

The MedQSR and the *State of Mediterannean an Black Sea Fisheries* (SoMFi) constitute the main synthesis reports of fisheries data relevant to EO3. While the MedQSR provides a comprehensive assessment of GES in the Mediterranean every four to six years, the SoMFi is published every two years and covers a broader scope than the EO3 indicators. As a result, Contracting Parties benefit from more frequent fisheries updates between MedQSR cycles, while the MedQSR remains the key IMAP reference for integrated GES assessment under the EcAp/IMAP process.

Based on these findings, **several recommendations emerge**.

Firstly, the GFCM's data collection and reporting system should continue to serve as the primary source for indicators CI7, CI8, and CI9, with necessary adjustments made as methodologies are updated. For CI10, CI11, and CI12, further methodological development is needed. In particular, finalizing common approaches through ongoing cooperation between GFCM and SPA/RAC is essential.

For CI12, it is important to capitalize on existing progress, notably the 2019 GFCM protocol entitled *Monitoring Incidental Catch of Vulnerable Species in Mediterranean and Black Sea Fisheries: Methodology for Data Collection*, developed under the MedBycatch project. Ensuring that this protocol is more broadly applied would strengthen regional capacity for monitoring bycatch.

Operationalizing the regional bycatch database would represent an important advancement. However, experience with similar systems—such as MEDACES—demonstrates that maintaining such a platform requires sustained resources and coordination. Therefore, any plans for its implementation should account for long-term needs in terms of funding, technical support, and data governance.

To avoid misalignment and ensure institutional coherence, it is crucial to reaffirm that the GFCM's DCRF should continue to serve as the primary reporting mechanism for EO3 indicators. Countries should be encouraged to maintain their reporting obligations through the DCRF, while SPA/RAC and UNEP/MAP work toward better integration and interpretation of these datasets for IMAP purposes.

It is important that both platforms, IMAP and DCRF, explicitly indicate that fisheries data used in IMAP are available and reported by Contracting Parties in the DCRF database, and that the data contained in the DCRF, which are relevant to IMAP and used for its purposes, are clearly identified as such. It should also be noted that national reporting in the DCRF contributes to IMAP obligations, as well as to assessments under the Barcelona Convention and the MedQSR.

Any additional data collection or reporting efforts under IMAP should align fully with the DCRF framework and its methodological protocols, to preserve consistency, data sovereignty, and resource efficiency. It is also important to maintain and communicate the guarantees of data confidentiality embedded in the DCRF framework, which are essential to securing the trust and cooperation of national authorities.

Finally, the GFCM and SPA/RAC should continue and deepen their collaboration, together with other relevant partners, to ensure all conditions for the assessment of EO3 Common Indicators are fully met. Particular emphasis should be placed on standardizing data collection and ensuring the availability of timely, quality-assured datasets across the region.

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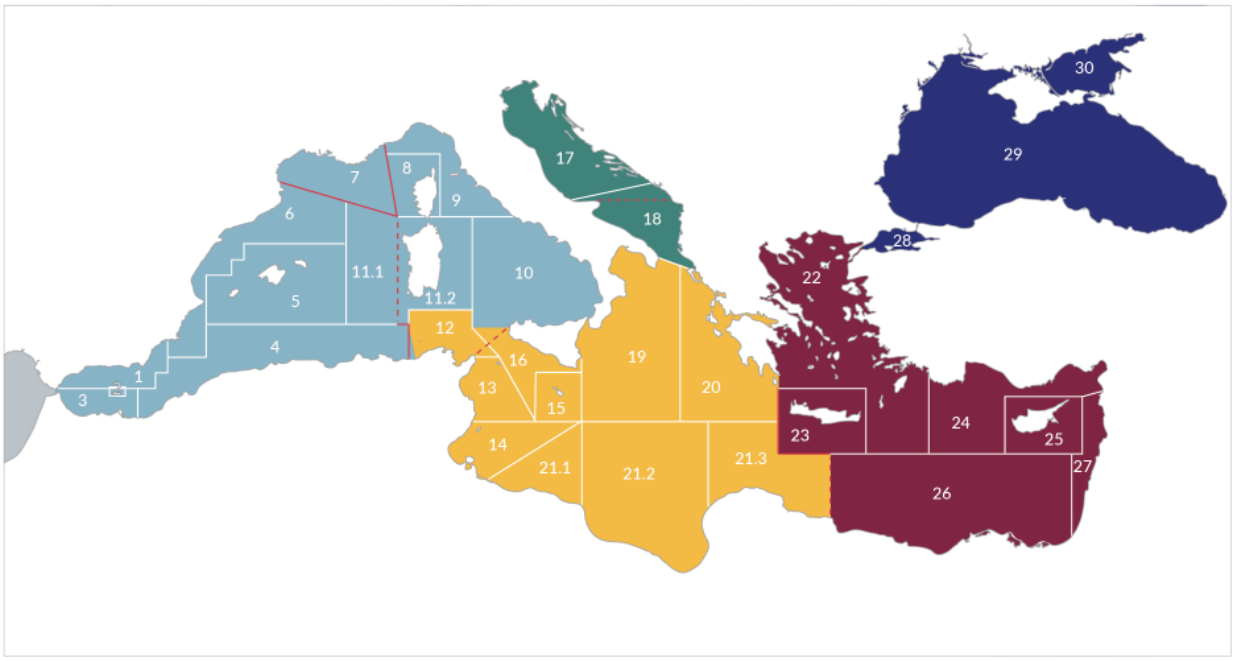
Annex 1.

GFCM subregions and associated subareas



FAO statistical divisions — GFCM geographical subareas (GSAs)

GFCM subregions

Contiguous Atlantic area | Western Mediterranean | Central Mediterranean | Adriatic Sea | Eastern Mediterranean | Black Sea

01. Northern Alboran Sea	07. Gulf of Lion	13. Gulf of Hammamet	19. Western Ionian Sea	25. Cyprus
02. Alboran Island	08. Corsica	14. Gulf of Gabès	20. Eastern Ionian Sea	26. Southern Levant Sea
03. Southern Alboran Sea	09. Ligurian Sea and northern Tyrrhenian Sea	15. Malta	21.1. Southwestern Ionian Sea 21.2. South-central Ionian Sea 21.3. Southeastern Ionian Sea	27. Eastern Levant Sea
04. Algeria	10. Southern and central Tyrrhenian Sea	16. Southern Sicily	22. Aegean Sea	28. Marmara Sea
05. Balearic Islands	11.1. Western Sardinia 11.2. Eastern Sardinia	17. Northern Adriatic Sea	23. Crete	29. Black Sea
06. Northern Spain	12. Northern Tunisia	18. Southern Adriatic Sea	24. Northern Levant Sea	30. Azov Sea

Source: FAO, https://www.fao.org/gfcm/data/maps/gsas/en/

Annex 2.

GFCM list of priority species

(Source: DCRF, 2018, Appendix B - Version 25.2, September 2025)

Appendix B

Priority species (2024)

Appendix B.1 - Group 1 species. Species that drive the fishery and for which assessment is regularly carried out

			Western Mediterranean Sea	Central Mediterranean Sea	Adriatic Sea	Eastern Mediterranean Sea	Black Sea
		GFCM subregions ▶					
		GSAs ▶	*1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11*	*12, 13, 14, 15, 16, 19, 20, 21*	*17, 18*	*22, 23, 24, 25, 26, 27*	*28, 29, 30*
		Countries ▶	*Algeria, France, Italy, Monaco, Morocco, Spain*	*Italy, Greece, Libya, Malta, Tunisia*	*Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro, Slovenia*	*Cyprus, Egypt, Greece, Israel, Lebanon, Syrian Arab Republic, Türkiye*	*Bulgaria, Georgia, Romania, Türkiye, Ukraine (Russian Federation)**
Species	**Scientific name**	**FAO 3-alpha code**					
Pelagics	*Engraulis encrasicolus*	ANE	X	X	X	X	X
	Sardina pilchardus	PIL	X	X	X	X	
	Sardinella aurita	SAA	X	X		X	
	Sprattus sprattus	SPR					X
	Trachurus mediterraneus	HMM					X
Demersal	*Aristaeomorpha foliacea*	ARS		X		X	
	Aristeus antennatus	ARA		X		X	
	Lagocephalus sceleratus	LFZ	X	X	X	X	
	Merlangius merlangus	WHG					X
	Merluccius merluccius	HKE	X	X	X	X	
	Mullus barbatus	MUT	X	X	X	X	
	Mullus surmuletus	MUR	X	X		X	
	Nephrops norvegicus	NEP	X	X	X		
	Pagellus bogaraveo	SBR	X				
	Parapenaeus longirostris	DPS	X	X	X	X	
	Pterois miles	UHQ	X	X	X	X	
	Rapana venosa	RPW					X
	Scophthalmus maximus	TUR					X
	Sepia officinalis	CTC			X		

			Western Mediterranean Sea	Central Mediterranean Sea	Adriatic Sea	Eastern Mediterranean Sea	Black Sea
		GFCM subregions ▶					
		GSAs ▶	*1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11*	*12, 13, 14, 15, 16, 19, 20, 21*	*17, 18*	*22, 23, 24, 25, 26, 27*	*28, 29, 30*
		Countries ▶	*Algeria, France, Italy, Monaco, Morocco, Spain*	*Italy, Greece, Libya, Malta, Tunisia*	*Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro, Slovenia*	*Cyprus, Egypt, Greece, Israel, Lebanon, Syrian Arab Republic, Türkiye*	*Bulgaria, Georgia, Romania, Türkiye, Ukraine (Russian Federation)**
Species	**Scientific name**	**FAO 3-alpha code**					
Demersal	*Solea solea*	SOL			X		
	Squalus acanthias[31]	DGS					X
	Squilla mantis	MTS			X		
Additional species**	*Anguilla anguilla*	ELE	X	X	X	X	
	Corallium rubrum	COL	X	X	X	X	
	Coryphaena hippurus	DOL		X	X	X	
	Sarda sarda	BON					X
	Saurida lessepsianus[32]	SZX				X	

** All States, including those that are not-CPCs and which are known to fish in the GFCM area of application, are encouraged to cooperate in joint actions undertaken in accordance with applicable international obligations (i.e. Article 63 UNCLOS).*

*** as identified by the Mid-term strategy (2017-2020) towards the sustainability of Mediterranean and Black Sea fisheries.*

Appendix B.2 - Group 2 species. Species which are important in terms of landing and/or economic values at the regional and subregional level, and for which assessment is not regularly carried out

GFCM subregions ▶		Western Mediterranean Sea	Central Mediterranean Sea	Adriatic Sea	Eastern Mediterranean Sea	Black Sea
GSAs ▶		*1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11*	*12, 13, 14, 15, 16, 19, 20, 21*	*17, 18*	*22, 23, 24, 25, 26, 27*	*28, 29, 30*
Countries ▶		*Algeria, France, Italy, Monaco, Morocco, Spain*	*Italy, Greece, Libya, Malta, Tunisia*	*Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro, Slovenia*	*Cyprus, Egypt, Greece, Israel, Lebanon, Syrian Arab Republic, Türkiye*	*Bulgaria, Georgia, Romania, Türkiye, Ukraine (Russian Federation)**
Scientific name	**FAO 3-alpha code**					
Alosa immaculata	SHC					X
Aristeus antennatus	ARA	X				
Boops boops	BOG	X	X	X	X	
Chamelea gallina	SVE			X		
Diplodus annularis	ANN		X			
Eledone cirrhosa	EOI	X		X		
Eledone moschata	EDT			X		
Galeus melastomus	SHO	X				
Lophius budegassa	ANK	X	X			
Micromesistius poutassou	WHB	X				
Octopus vulgaris	OCC	X	X	X	X	
Pagellus erythrinus	PAC	X	X	X	X	
Raja asterias	JRS	X				
Raja clavata	RJC	X	X			
Saurida undosquamis	LIB				X	
Scomber colias	VMA	X			X	
Scomber scombrus	MAC	X	X			
Sepia officinalis	CTC	X	X			
Siganus luridus	IGU				X	

GFCM subregions ▶		Western Mediterranean Sea	Central Mediterranean Sea	Adriatic Sea	Eastern Mediterranean Sea	Black Sea
GSAs ▶		*1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11*	*12, 13, 14, 15, 16, 19, 20, 21*	*17, 18*	*22, 23, 24, 25, 26, 27*	*28, 29, 30*
Countries ▶		*Algeria, France, Italy, Monaco, Morocco, Spain*	*Italy, Greece, Libya, Malta, Tunisia*	*Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro, Slovenia*	*Cyprus, Egypt, Greece, Israel, Lebanon, Syrian Arab Republic, Türkiye*	*Bulgaria, Georgia, Romania, Türkiye, Ukraine (Russian Federation)**
Scientific name	**FAO 3-alpha code**					
Siganus rivulatus	SRI				X	
Solea solea	SOL				X	
Sphyraena sphyraena	YRS		X			
Spicara smaris	SPC			X	X	
Trachurus mediterraneus	HMM	X				
Trachurus picturatus	JAA	X				
Trachurus trachurus	HOM	X	X		X	

** All States, including non- CPCs of the GFCM which are known to fish in its area of application, are encouraged to cooperate in joint actions undertaken in accordance with applicable international obligations (i.e. Article 63 UNCLOS).*

Annex 3.

GFCM list of vulnerable species

(Source: DCRF, 2018, Appendix F - Version 25.2, September 2025)

Vulnerable species

Group of vulnerable species	Family	Species	Common name
Cetaceans 	Balaenidae	*Eubalaena glacialis*	North Atlantic right whale
	Balaenopteridae	*Balaenoptera acutorostrata*	Common minke whale
		Balaenoptera borealis	Sei whale
		Balaenoptera physalus	Fin whale
		Megaptera novaeangliae	Humpback whale
	Delphinidae	*Delphinus delphis*	Common dolphin
		Globicephala melas	Long-finned pilot whale
		Grampus griseus	Risso's dolphin
		Orcinus orca	Killer whale
		Pseudorca crassidens	False killer whale
		Stenella coeruleoalba	Striped dolphin
		Steno bredanensis	Rough-toothed dolphin
		Tursiops truncatus	Common bottlenose dolphin
	Kogiidae	*Kogia sima*	Dwarf sperm whale
	Phocoenidae	*Phocoena phocoena*	Harbour porpoise
	Physeteridae	*Physeter macrocephalus*	Sperm whale
	Ziphiidae	*Mesoplodon densirostris*	Blainville's beaked whale
		Ziphius cavirostris	Cuvier's beaked whale

Group of vulnerable species	Family	Species	Common name
Osteichthyes 	Acipenseridae	*Acipenser* sp.	Sturgeon[34]
		Huso sp.	
Seals 	Phocidae	*Monachus monachus*	Mediterranean monk seal

Group of vulnerable species	Family	Species	Common name
Sharks, Rays, Chimaeras 	Alopiidae	*Alopias vulpinus*	Common thresher
	Carcharhinidae	*Carcharhinus plumbeus*	Sandbar shark
		Prionace glauca	Blue shark
	Centrophoridae	*Centrophorus granulosus*	Gulper shark
	Cetorhinidae	*Cetorhinus maximus*	Basking shark
	Chimaeridae	*Chimaera monstrosa*	Rabbit fish
	Glaucostegidae	*Glaucostegus cemiculus*	Blackchin guitarfish
	Gymnuridae	*Gymnura altavela*	Spiny butterfly ray
	Hexanchidae	*Heptranchias perlo*	Sharpnose sevengill shark
	Lamnidae	*Carcharodon carcharias*	Great white shark
		Isurus oxyrinchus	Shortfin mako
		Lamna nasus	Porbeagle
	Mobulidae	*Mobula mobular*	Devil fish
	Odontaspididae	*Carcharias taurus*	Sand tiger
		Odontaspis ferox	Small-tooth sand tiger shark
	Oxynotidae	*Oxynotus centrina*	Angular rough shark
	Pristidae	*Pristis pectinata*	Smalltooth sawfish
		Pristis pristis	Common sawfish
	Rajidae	*Dipturus batis*	Blue skate
		Leucoraja circularis	Sandy ray
		Leucoraja melitensis	Maltese skate
		Rostroraja alba	White skate
	Rhinobatidae	*Rhinobatos rhinobatos*	Common guitarfish
	Sphyrnidae	*Sphyrna lewini*	Scalloped hammerhead
		Sphyrna mokarran	Great hammerhead
		Sphyrna zygaena	Smooth hammerhead
	Squalidae	*Squalus acanthias*	Piked dogfish
	Squatinidae	*Squatina aculeata*	Sawback angelshark
		Squatina oculata	Smoothback angelshark
		Squatina squatina	Angelshark

Sharks, Rays, Chimaeras	Triakidae	*Galeorhinus galeus*	School/Tope shark
		Mustelus mustelus	Smooth-hound
		Mustelus punctulatus	Blackspotted smooth-hound
Seabirds 	Alcedinidae	*Ceryle rudis*	Pied kingfisher
		Halcyon smyrnensis	White-throated kingfisher
	Charadriidae	*Charadrius alexandrinus*	Kentish plover
		Charadrius leschenaultii columbinus	Greater sand plover
	Falconidae	*Falco eleonorae*	Eleonora's falcon
	Hydrobatidae	*Hydrobates pelagicus**	European storm-petrel (Mediterranean)
		*Hydrobates pelagicus melitensis**	European storm-petrel
	Laridae	*Chroicocephalus genei **	Slender-billed gull
		*Gelochelidon nilotica**	Common Gull-billed tern
		*Hydroprogne caspia**	Caspian tern
		*Ichthyaetus melanocephalus **	Mediterranean gull
		*Larus armenicus**	Armenian gull
		*Larus audouinii**	Audouin's gull
		*Sterna bengalensis**	Lesser crested tern
		*Sterna sandvicensis**	Sandwich tern
		*Sternula albifrons**	Little tern
	Pandionidae	*Pandion haliaetus*	Osprey
	Pelecanidae	*Pelecanus crispus*	Dalmatian pelican
		Pelecanus onocrotalus	Great white pelican
	Phalacrocoracidae	*Gulosus aristotelis desmarestii*	European shag (Mediterranean)
		Microcarbo pygmaeus	Pygmy cormorant
	Phoenicopteridae	*Phoenicopterus ruber*	Greater flamingo
	Procellariidae	*Calonectris borealis**	Cory's shearwater
		*Calonectris diomedea**	Scopoli's shearwater
		*Puffinus mauretanicus**	Balearic shearwater
		*Puffinus yelkouan**	Yelkouan shearwater
	Scolopacidae	*Numenius tenuirostris*	Slender-billed curlew

Group of vulnerable species	Family	Species	Common name
Sea turtles 	Cheloniidae	*Caretta caretta*	Loggerhead turtle
		Chelonia mydas	Green turtle
		Eretmochelys imbricata	Hawksbill Turtle
		Lepidochelys kempii	Kemp's ridley sea turtle
		Lepidochelys olivacea	Olive ridley sea turtle
	Dermochelyidae	*Dermochelys coriacea*	Leatherback sea turtle
	Trionychidae	*Trionyx triunguis*	African softshell turtle

Rare elasmobranchs species

Group of rare species	Family	Species	Common name
Sharks, Rays, Chimaeras 	Alopiidae	*Alopias superciliosus*	Bigeye thresher
	Arhynchobatidae	*Bathyraja brachyurops*	Blonde skate
	Carcharhinidae	*Carcharhinus altimus*	Bignose shark
		Carcharhinus brachyurus	Bronze whaler shark
		Carcharhinus brevipinna	Spinner shark
		Carcharhinus falciformis	Silky shark
		Carcharhinus limbatus	Blacktip shark
		Carcharhinus melanopterus	Blacktip reef shark
		Carcharhinus obscurus	Dusky shark
		Rhizoprionodon acutus	Milk shark
	Centrophoridae	*Centrophorus uyato*	Little gulper shark
	Dasyatidae	*Bathytoshia centroura*	Roughtail stingray
		Himantura uarnak	Honeycomb whipray
		Taeniurops grabatus	Round stingray
	Echinorhinidae	*Echinorhinus brucus*	Bramble shark
	Galeocerdonidae	*Galeocerdo cuvier*	Tiger shark
	Hexanchidae	*Hexanchus nakamurai*	Bigeye sixgill shark
	Lamnidae	*Isurus paucus*	Longfin mako
	Pentanchidae	*Galeus atlanticus*	Atlantic sawtail catshark
	Rajidae	*Dipturus nidarosiensis*	Norwegian skate
		Leucoraja fullonica	Shagreen skate
		Leucoraja naevus	Cuckoo skate
		Raja montagui	Spotted skate
		Raja polystigma	Speckled skate
		Raja radula	Rough skate
		Raja undulata	Undulate skate
	Somniosidae	*Centroscymnus coelolepis*	Portugese dogfish
		Somniosus rostratus	Little sleeper shark
	Sphyrnidae	*Sphyrna tudes*	Smalleye hammerhead
	Squalidae	*Squalus megalops*	Shortnose spurdog
	Torpedinidae	*Tetronarce nobiliana*	Great torpedo ray
		Torpedo sinuspersici	Variable torpedo ray

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