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Back-to-back Meeting of the Ecosystem Approach Correspondence Groups on Monitoring (CORMON) Biodiversity and Fisheries and Economic and Social Analysis (COR ESA)

Videoconference, 10 -11 June 2026

Agenda Item 6: Ecological Objective 4 (Marine Food Webs): Defining GES and Targets – Progress and sharing national approaches to Marine Food Web Monitoring and Assessment

Progress Update on the Development of Good Environmental Status (GES) Definitions and Targets for the Common Indicator under Ecological Objective 4 (Marine Food Webs)

SPA/RAC
Tunis, 2026

Note by the Secretariat

The Contracting Parties (CP) to the Barcelona Convention adopted (CoP 19, Athens 2016) the Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) (Decision IG.22/7) within the Ecosystem Approach (EcAp) process. The IMAP requirements focus on agreed Ecological Objectives (EOs) and their related common indicators.

Building on the experience gained through national IMAP implementation and the findings of the 2023 Mediterranean Quality Status Report (MED QSR), the Contracting Parties requested, through Decision IG.26/3 adopted at COP23, the revision of the Ecosystem Approach (EcAp) and IMAP with a view to strengthening monitoring and assessment capacities, improving data quality and supporting reliable regional assessments. This process resulted in the adoption of an updated EcAp Policy and a revised version of IMAP at COP24.

Within this context, Ecological Objective 4 (EO4) on Marine Food Webs has been identified as a priority area requiring further development. While initial proposals concerning Good Environmental Status (GES), indicators and targets for marine food webs were discussed during the early stages of the Ecosystem Approach implementation process, EO4 was not fully integrated into the 2016 IMAP framework due to data limitations, methodological challenges and knowledge gaps at the Mediterranean scale.

To address these gaps, SPA/RAC initiated a series of activities aimed at advancing the development of monitoring and assessment elements for marine food webs, including a regional desk review of available data sources, methodologies and best practices, as well as the establishment of a Biodiversity Online Working Group on Marine Food Webs. Building upon the recommendations of the Working Group, a set of candidate IMAP Common Indicators for EO4 was developed and subsequently considered within the EcAp and IMAP revision process. These proposals were reviewed through the relevant EcAp governance bodies and incorporated into the updated IMAP adopted by COP24 as a basis for the further operationalization of EO4.

The present document provides an overview of the progress achieved in the development of monitoring and assessment elements for Ecological Objective 4 (Marine Food Webs), including the establishment of candidate indicators, the outcomes of the Biodiversity Working Group and the next steps required to support the development of Guidance Factsheets (GFS), Good Environmental Status (GES) definitions, threshold values and assessment methodologies for marine food webs under the IMAP framework.

Progress Update on Ecological Objective 4 (Marine Food Webs): Development of Monitoring and Assessment Elements for Good Environmental Status (GES)

Introduction

1. The Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) adopted in 2016 (Decision IG.22/7 – COP19) describes the strategy, themes, and products that the Contracting Parties to the Barcelona Convention are aiming to deliver, through collaborative efforts, over the second cycle (2016 – 2021) of the implementation of the Ecosystem Approach (EcAp) Process, and the undergoing third cycle (2026 – 2035), in order to assess the status of the Mediterranean sea and coast, as a basis for further and/or strengthened measures.

2. Ecological Objective 4 aims to ensure that alterations to components of marine food webs caused by resource extraction or human-induced environmental changes do not have long-term adverse effects on food web dynamics and related viability.

3. Considering the ecological importance of marine food webs in maintaining ecosystem functioning, biodiversity conservation and sustainable fisheries, the Contracting Parties recognized the need to strengthen regional monitoring and assessment efforts related to food webs and trophic interactions.

Development of Monitoring and Assessment Elements for Marine Food Webs

4. As a first step towards the development of Ecological Objective 4, SPA/RAC commissioned a regional desk review study to inventory available data sources, methodologies, monitoring practices and assessment approaches relevant to marine food webs in the Mediterranean Sea.

5. The study reviewed scientific publications, existing monitoring programmes, available datasets, assessment methodologies developed under the Marine Strategy Framework Directive (MSFD), OSPAR and HELCOM, as well as relevant regional and national projects, institutions and experts working on food web assessment in the Mediterranean region.

6. The results highlighted the existence of substantial scientific knowledge on Mediterranean marine food webs, while also identifying important gaps related to data availability, harmonized monitoring methodologies, indicator operationalization, threshold setting and regional assessment approaches.

7. Following the recommendations of the CORMON Biodiversity and Fisheries Meeting held in June 2024, SPA/RAC established a Biodiversity Online Working Group (BWG) on Marine Food Webs. The Working Group brought together experts nominated by Contracting Parties and was supported by a multidisciplinary group of voluntary experts as well as specialists involved in the implementation of the Marine Strategy Framework Directive.

8. The main objectives of the Working Group were to identify suitable indicators for marine food webs, review best practices and methodologies, identify knowledge gaps, propose approaches for the assessment of Good Environmental Status (GES) and facilitate the harmonization of monitoring and assessment methodologies across the Mediterranean region.

9. The Working Group concluded that marine food webs are affected by multiple interacting pressures, including fisheries, eutrophication, climate change, pollution and non-indigenous species, making it difficult to identify a single indicator capable of assessing food web status at ecosystem level.

10. The discussions highlighted the importance of adopting a stepwise approach to food web assessment, combining simple indicators based on biomass, abundance and trophic levels with progressively more complex ecosystem-based approaches and ecological modelling tools.

11. The Working Group also identified major scientific and technical gaps, including limited long-term

datasets, insufficient information on trophic interactions and feeding habits, scarcity of harmonized monitoring programmes, limited information on plankton communities and invertebrates, and challenges related to the assessment of cumulative impacts and climate-driven changes.

12. Particular attention was given to reviewing approaches developed under the Marine Strategy Framework Directive (MSFD), HELCOM and OSPAR, as well as ecosystem modelling approaches such as Ecopath with Ecosim, OSMOSE and ATLANTIS. These experiences provided valuable guidance for the development of a Mediterranean framework for marine food web assessment.

13. The discussions further emphasized the strong ecological links between marine food webs and other Ecological Objectives, particularly EO1 (Biodiversity), EO2 (Non-Indigenous Species), EO3 (Commercially Exploited Fish and Shellfish), EO5 (Eutrophication) and EO9 (Pollution), highlighting the need to ensure coherence across IMAP implementation.

14. Based on the outcomes of the Biodiversity Working Group and the multidisciplinary expert consultations, a proposal was developed to support the integration of Ecological Objective 4 into the IMAP monitoring and assessment framework.The proposed framework is based on two operational objectives and a set of candidate indicators addressing food web structure, trophic dynamics and ecosystem functioning.

15. The first operational objective aims to ensure that ecosystem diversity and trophic dynamics across all trophic groups support the long-term maintenance of biomass and abundance of species. The proposed indicators include biomass or abundance of species, genera, taxa or trophic groups, average mean trophic level derived from biomass and catches, and biodiversity indices.

16. The second operational objective aims to ensure that the proportion of selected groups of species remains balanced, as expected in healthy food webs. Proposed indicators include pelagic-to-demersal ratios, non-indigenous species-to-demersal ratios, zooplankton-to-phytoplankton ratios, size distribution of trophic groups and megafauna production.

17. The proposed monitoring and assessment elements were progressively reviewed by the Biodiversity Working Group on Marine Food Webs, the CORMON Biodiversity and Fisheries Meeting, the Seventeenth Meeting of SPA/BD Focal Points and the EcAp Coordination Group. Following these reviews, the candidate indicators were incorporated into the updated IMAP adopted at COP24, providing the first regionally agreed basis for the future operationalization of Ecological Objective 4.

18. This achievement represents an important milestone in the implementation of the Ecosystem Approach and establishes the foundation for the future development of operational indicators, Good Environmental Status (GES) definitions, targets, threshold values and regional assessment methodologies for marine food webs.

Way Forward

19. The process initiated through the desk review study and subsequently strengthened through the work of the Biodiversity Online Working Group has enabled significant progress in the development of monitoring and assessment elements for Ecological Objective 4. Nevertheless, further work remains necessary to transform the candidate indicators into fully operational IMAP Common Indicators and to support the establishment of Good Environmental Status (GES), targets, threshold values and assessment criteria for marine food webs.

20. In parallel with the development of candidate indicators, SPA/RAC, together with the Biodiversity Online Working Group on Marine Food Webs, has prepared a questionnaire to collect information on existing monitoring programmes, datasets and data sources relevant to marine food web assessments. The questionnaire will be circulated to all Contracting Parties with a view to gathering metadata on monitored biological components, available variables, spatial and temporal coverage, sampling methodologies, data accessibility and their potential contribution to the proposed EO4 indicators. The information collected will support the identification of datasets suitable for the calculation and assessment of food web indicators, including biomass and abundance of trophic groups, trophic level estimates, biodiversity indices and food

web structure metrics. It will also help identify knowledge gaps, monitoring needs and opportunities for regional harmonization, thereby contributing to the further development and implementation of Ecological Objective 4 (EO4) within the IMAP framework.

21. Within the framework of the SPA/RAC Programme of Work 2026–2027, SPA/RAC will continue supporting the Biodiversity Online Working Group on Marine Food Webs and strengthening collaboration with experts involved in the implementation of the Marine Strategy Framework Directive MSFD, OSPAR and HELCOM.

22. Further work will focus on the development of Guidance Factsheets (GFS), Good Environmental Status (GES) definitions, targets and threshold values, as well as on refining the proposed indicators and assessment methodologies. Efforts will also aim to improve data harmonization, interoperability and regional comparability through the development of Data Standards (DS) and Data Dictionaries (DD) in collaboration with INFO/RAC.

23. Particular attention will be given to strengthening synergies with Ecological Objectives EO1 (Biodiversity), EO2 (Non-Indigenous Species), EO3 (Commercially Exploited Fish and Shellfish), EO5 (Eutrophication) and EO9 (Pollution), recognizing the strong ecological interactions between these objectives and marine food web dynamics.

24. All proposed monitoring and assessment elements will be submitted, as appropriate, to the relevant governance bodies of the Barcelona Convention for review, consideration and validation in accordance with the established EcAp and IMAP governance process.