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24th Meeting of the Contracting Parties to the
Convention for the Protection of the Marine Environment
And the Coastal Region of the Mediterranean and its Protocols

Athens, Greece, 2-5 October 2025

Agenda Item 3: Thematic Decisions

Decision 27/6: Ecosystem Approach (EcAp) Policy and Roadmap 2026-2035 and Integrated Monitoring and Assessment Programme for the Mediterranean Sea and Coast (IMAP)

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Note by the Secretariat

1. The Ecosystem Approach (EcAp) was agreed in the framework of UNEP/MAP-Barcelona Convention system at the 15th Meeting of the Contracting Parties to the Barcelona Convention and its Protocols in 2008 (COP 15, Almeria, Spain, 15-18 January 2008) (Decision IG.17/6) and included an ecological vision and strategic goals for the Mediterranean. Since then, a number of important Decisions have been adopted by the Contracting Parties (CPs) to the Barcelona Convention and its Protocols for its implementation:

- COP 17 in 2012 adopted the initial integrated assessment for the Mediterranean sea and coast, including the ecological and operational objectives, indicators and timetable (2010-2019) for implementing the EcAp roadmap (Decision IG.20/4);
- COP 18 in 2013 adopted the Good Environmental Status (GES) definitions and proposed targets, the process and principles of the Integrated Monitoring and Assessment Programme (IMAP) for the Mediterranean Sea and Coast and Related Assessment Criteria, the first EcAp timeline (2014-2017), data sharing principles, EcAp governance structure, and socio-economic work programme (Decision IG.21/3);
- COP 22 in 2021 adopted an updated EcAp governance mechanism for the implementation of EcAp in the Mediterranean (Decision IG.25/3).

2. The Integrated Monitoring and Assessment Programme for the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) was adopted during COP 19 in 2016 through Decision IG.22/7. Since then significant progress can be reported, including the development of: IMAP-based national monitoring programmes for all Mediterranean Countries, for all IMAP Common Indicators, indicator guidance factsheets, assessment criteria, assessment methodologies IMAP Info System, the regional data repository and IMAP data policy (Decision IG.25/10), two regional assessments, namely the 2017 and 2023 Mediterranean Quality Status Reports (MED QSR) (Decision IG.23/6 of COP 20, and Decision IG.26/3 of COP 23, respectively), as well as many additional sub-elements.

3. During COP 23 (Portorož, Slovenia, 5-8 December 2023), the Contracting Parties requested the Secretariat, through Decision IG.26/3, to prepare during the biennium 2024-2025, under the leadership of the Ecosystem Approach Coordination Group (EcAp CG), a revised EcAp Roadmap Policy, including IMAP enhancement, taking into account, but not limited to, the outcomes of the 2023 Mediterranean Quality Status Report (2023 MED QSR), the findings of the independent evaluation of the implementation of the EcAp Roadmap, and other related work of the Secretariat as per the CORMONs' and EcAp CG meeting's conclusions, and giving due consideration to the most recent relevant developments at global and regional level, including the expected evaluation and revision of the European Union (EU)'s Marine Strategy Framework Directive (MSFD), for consideration at COP 24 in Egypt (Cairo, Egypt, 2-5 December 2025).

4. The Secretariat prepared and presented during the 11th Meeting of the EcAp CG (Videoconference, 2 October 2024), a first proposal for upgrading EcAp and IMAP: (a) move from a seven-step implementation approach to a six-step implementation approach; (b) revise EcAp vision, in alignment and coherence with the vision of the UNEP/MAP Medium-Term Strategy; (c) revise the strategic goals to encompass the concepts of Good Environmental Status (GES), climate change, and ecosystem restoration actions; (d) revise accordingly the operational objectives, indicators, GES definition and targets. With regards to IMAP upgrade, the proposal touches upon all clusters of IMAP, reflecting all the developments undertaken in the framework of IMAP implementation since 2016, as well as a first proposal pertinent to the inclusion of elements and priorities to facilitate and support IMAP third cycle implementation.

5. In line with the Conclusions and Recommendations of the 11th EcAp CG meeting, the Secretariat initiated an e-mail communication with the Contracting Parties on 17 October 2024, including a questionnaire, detailing information on all elements stated in paragraph four of the Conclusions and Recommendations, along with additional information on the process, with the aim to receive feedback with regards to the process and the way forward. Feedback was received from five Contracting Parties (i.e., Egypt, France, Israel, Malta, and Türkiye), which is incorporated in the present document.

6. The respective CORMONs (i.e. CORMONs on Biodiversity and Fisheries, Pollution, Marine Litter, Coast and Hydrography) and Thematic Focal Points (i.e., SPA/BD, MED POL, and PAP/RAC) Meetings organized in 2024 and 2025, reviewed the respective components' content and information, in line with their respective mandates, the outcome of which is incorporated in the present document.

7. The present document presents the six-steps proposed to support the implementation of EcAp Policy for the period 2026-2035, including: a new ecological vision, updated strategic goals, updated list of Ecological Objectives, Indicators, GES definitions and targets, a detailed list of measures prescribed by the respective Regional Plans and Post-2020 SAPBIO, an updated timeline, the Terms of reference (TORs) for EcAp Correspondence Groups on Monitoring (CORMONs), Economic and Social Analysis (COR ESA) and Online Working Groups (OWGs), as well as the Third Cycle of (IMAP).

8. The 12th Meeting of EcAp Coordination Group (EcAp CG) (Athens, Greece, 15 September 2025) reviewed this Draft Decision, with its annexes, which was subsequently endorsed by the Meeting of the MAP Focal Points (Athens, Greece, 16-19 September 2025). The revision elements agreed by the 12th EcAp CG and MAP Focal Points Meetings are provided in **blue highlight**.

9. At the request of the Meeting of the MAP Focal Points (16-19 September 2025) an online CORMON on Coast and Hydrography was organized on 30 September 2025, which agreed on the following: (a) to introduce two (2) climate-change related indicators under EO7 (i.e., Candidate Common Indicators 39 and 40); and (b) to introduce three (3) new climate-change related indicators under EO8 (i.e., Candidate Common Indicators 41, 42, 43). The aforementioned proposals are provided in **green highlight**.

10. This decision and its Annexes was submitted to the 2025 MAP Focal Points Meeting (Athens, Greece, 16-19 September 2025) that decided to transmit it to the 24th Meeting of the Contracting Parties (COP24) (Cairo, Egypt, 2-5 December 2025), as amended during the MAP Focal Points meeting.

[**Decision IG.27/6**]

Ecosystem Approach (EcAp) Policy and Roadmap 2026-2035 and Integrated Monitoring and Assessment Programme for the Mediterranean Sea and Coast (IMAP)

The Contracting Parties to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, and its Protocols, at their 24th meeting,

Welcoming the outcome document of the 2025 United Nations Conference to Support the Implementation of Sustainable Development Goal (SDG) 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (UNOC-3, Nice, France, June 2025) entitled “Our ocean, our future: united for urgent action”, reaffirming the strong global commitment to conserve and sustainably use the ocean, seas and marine resources and reconfirming the need to strengthen the role of regional seas conventions and action plans,

Being inspired by the high-level celebration of the anniversary of the 50 years of the United Nations Environment Programme/Mediterranean Action Plan (UNEP/MAP) and the 30 years of the Post-Rio Barcelona Convention, at UNOC-3, on 10 June 2025, as a strong sign of renewed commitment of the Contracting Parties, as reflected in their Ministerial Declaration,

Recalling the United Nations General Assembly Resolution 76/296 of July 2022, entitled “Our Ocean, Our future, Our responsibility”,

Referring to the United Nations Environment Assembly Resolutions 6/15 of March 2024, on strengthening ocean efforts to address climate change, marine biodiversity loss, and pollution, which underscores the need to implement regional seas conventions, protocols, and action plans for the protection and conservation of the marine and coastal environment; 3/10 of December 2017, on addressing water pollution in inland, coastal, and marine ecosystems to protect and restore water-related ecosystems, as well as the related Action Plan for its implementation; 5/8 of March 2021, on establishing a science-policy panel to provide countries with independent, policy-relevant scientific advice on chemicals, waste, and pollution prevention; 5/14 of March 2022, which set the basis for the process on developing an international legally binding instrument to end plastic pollution,

Recalling the Barcelona Convention and its Protocols and the respective provisions for enhancing EcAp Policy and Roadmap implementation,

Recalling further Decisions IG.17/6 of COP 15 (Almeria, Spain, 2008); IG.20/4 of COP 17 (Paris, France, 2012); IG.21/3 of COP 18 (Istanbul, Türkiye, 2013); and IG.25/3 of COP 22 (Antalya, Türkiye, 2021) on EcAp Policy implementation,

Recalling also Decisions IG.22/7 of COP 19 (Athens, Greece, 2016); IG.23/6 of COP 20 (Tirana, Albania, 2017); IG.24/4 of COP 21 (Naples, Italy, 2019); IG.25/10 of COP 22 (Antalya, Türkiye, 2021); and IG.26/3 of COP 23 (Portorož, Slovenia, 2023) on IMAP implementation and development of the Mediterranean Quality Status Reports (MED QSR),

Considering the findings and policy recommendation of the 2023 MED QSR including its Executive Summary and Summary for Policy Makers, as well as the work guided by the Ecosystem Approach Correspondence Groups on Monitoring (CORMONs), as well as of the Ecosystem Approach Coordination Group Meetings,

Appreciating the work conducted by the Contracting Parties to establish and make operational national IMAP-based monitoring programmes for the IMAP Ecological Objectives and respective Common Indicators, including data generation,

Considering the developments within the European Union (EU) Marine Strategy Framework Directive (MSFD), including its assessment as well as of the Programmes of Measures (PoMs), as an important mechanism to support EcAp implementation,

Considering the developments within the Regional Seas Conventions on the monitoring and assessment of marine environment,

1. *Approve* the following Ecological Vision for the Mediterranean Sea and Coast:

“Progress towards a healthy, clean, pollution free sustainable and climate resilient Mediterranean Sea and Coast with productive and biologically diverse marine and coastal ecosystems, where the 2030 Agenda for sustainable development and its SDGs are achieved through the effective implementation of the Barcelona Convention, its Protocols and the Mediterranean Strategy for Sustainable Development for the benefit of people and nature.”;

2. *Agree to apply* the following EcAp Strategic Goals for the Mediterranean (2026-2035):

- a) *To protect enhance environmental conditions allowing natural recovery and, where practicable based on national priorities, restore the structure and function of marine and coastal ecosystems thus also protecting biodiversity, in order to achieve and maintain Good Environmental Status and allow for their sustainable use;*
- b) *To reduce pollution from different sources in the marine and coastal environment so as to minimize impacts on, and risks to, human and/or ecosystem health and/or uses of the sea and the coasts;*
- c) *To prevent, reduce and manage the vulnerability of the sea and the coasts to risks induced by human activities, including climate change and natural event.*

3. *Adopt* the MAP EcAp Policy and Roadmap 2026-2035, presented in Annex I, including its 6 implementation steps, ecological objective, operational objectives, indicators, Good Environmental Status (GES) definitions and targets, timeline, and governance structure for guiding EcAp implementation,

4. *Reaffirms* the EcAp governance structure through Ecosystem Approach Coordination Group Meeting (EcAp CG), Correspondence Groups on monitoring (CORMONs), Correspondence Group on Economic and Social Analysis (COR ESA) and ad-hoc Online Working Groups (OWG), to this aim *adopts* the Terms of References and flow of interaction as presented in Annex I,

5. *Request* the Contracting Parties to ensure full implementation of EcAp as the primary drive to progress towards a healthy, clean, sustainable and climate resilient Mediterranean Sea and Coast, and to achieve GES, noting that in case of any discrepancy, the terms and contents of this decision override those of all other decisions,

6. *Invite* the Contracting Parties to provide the necessary financial and institutional support for the effective implementation of the National Action Plans/Programmes of Measures (NAPs/PoMs'), as well as for the monitoring and assessment of marine and coastal environment,

7. *Encourage* partners, competent organizations, scientific community, citizens and private sector to fully consider the vision, strategic goals and other elements of EcAp Policy and Roadmap, strengthen their work to ensure continued efforts for its implementation,

8. *Adopt* the third cycle of IMAP based on an 8-year cycle, presented in Annex II, and *approve* the assessment criteria while noting their evolving nature based on quality-assured data availability and progress towards GES,

9. *Request* the Contracting Parties to streamline IMAP implementation, in line with their national specificities,

10. *Promote* Science-Policy Interface to enhance evidenced-based policy making,

11. *Take into account* the differences in the monitoring capacities of the Contracting Parties and the need to further enhance capacity building and technical assistance for implementation; *giving particular attention to newly introduced common and candidate indicators on primary basis,*

12. *Invite* the Contracting Parties, with the support of the Secretariat, to update their national monitoring programmes in light of the updated elements of IMAP and to report regularly quality-assured data;

13. *Encourage* the Contracting Parties, with the support of the Secretariat, to undertake joint monitoring initiatives, exchange best practices, use harmonized monitoring and assessment methodologies, ensure cost efficiency, and apply the region-wide agreed assessment criteria under IMAP;

14. *Invite* the Secretariat, in collaboration with the Contracting Parties, to engage with relevant international financing institutions, regional and international organizations, the private sector, and other relevant stakeholders to identify and pursue opportunities for mobilizing financial resources in support of the implementation of the updated NAPs/PoMs and enhanced national capacities for IMAP implementation;

15. *Urge* the Contracting Parties to implement the NAPs/PoMs and accelerate progress towards achieving GES in the Mediterranean, enhance coherence with other national policies and strategies, and regularly report on their implementation pursuant to Article 13 of the Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Source (LBS Protocol), while securing enabling conditions for their long-term sustainability within the broader context of global efforts to address the combined threats of the triple planetary crisis - climate change, biodiversity loss and pollution - and the regional commitment to implement the Mediterranean Strategy for Sustainable Development for the period 2026-2035, as a strategic regional cooperation framework to upscale sustainable and climate resilient development pathways;

16. *Invite* partners, as well as regional and international organizations to support IMAP and NAPs/PoMs implementation, and use all available means, mechanisms and facilities to contribute to achieving GES in the Mediterranean;

17. *Request* the Secretariat to allocate adequate financial resources in line with the Programme of Work to support the Contracting Parties for the implementation of the updated IMAP-based national monitoring programmes; and

18. *Request* the Secretariat to upgrade the IMAP InfoSystem not only to serve as a data repository but also to generate assessment products, and the Contracting Parties to effectively and timely submit IMAP generated data in line with the monitoring frequency of the respective Common Indicators, as indicated in the respective Indicator Guidance Factsheets.]

Annex I

EcAp Policy and Roadmap (2026 – 2035)

1.Introduction

1. The Ecosystem Approach (EcAp) was agreed in the framework of UNEP/MAP Barcelona Convention System in 2008 and since then a number of important Decisions have been adopted by the Contracting Parties (CPs) to the Barcelona Convention to support the roadmap for its implementation:

- 2008 – COP15 | [Decision IG.17/6](#): “Implementation of the Ecosystem Approach to the management of human activities that may affect the Mediterranean marine and coastal environment”.
- 2012 – COP17 | [Decision IG.20/4](#): “*Implementing MAP ecosystem approach roadmap (Mediterranean Ecological and Operational Objectives, Indicators and Timetable for Implementing the Ecosystem Approach Roadmap)*”.
- 2013 – COP18 | [Decision IG.21/3](#): “*Ecosystem Approach including adopting definitions of Good Environmental Status (GES) and Targets*”.
- 2017 – COP20 | [Decision IG.23/6](#): “*2017 Mediterranean Quality Status Report (MED QSR)*”.
- 2019 – COP21 | [Decision IG.24/4](#): “*Assessment Studies*” (Annex V: Roadmap and Needs Assessment for the 2023 MED QSR)
- 2021 – COP22 | [Decision IG.25/3](#): “*Governance*” (Annex I: Governance Mechanism for the Implementation of the Ecosystem Approach in the Mediterranean).
- 2021 – COP22 | [Decision IG.25/10](#): “*MAP Data Policy*”.
- 2023 – COP23 | [Decision IG.26/3](#): “*The 2023 Mediterranean Quality Status Report (MED QSR) and a Renewed Ecosystem Approach Policy in the Mediterranean*”.

2. Ecosystem Approach Vision for Achieving Good Environmental Status in the Mediterranean Sea (2025–2035)

2. The Mediterranean Sea is one of the most iconic marine environments. It is home to approximately 17,000 marine species, some of which are found nowhere else, and supports the livelihoods of over 480 million people living in its coastal states. However, this vital resource stands at a crossroads with pressures from climate change, pollution, overfishing, invasive species, unsustainable tourism, and habitat degradation are mounting, placing the ecological and socio-economic future of the region at serious risk.

3. Drawing from the main findings deriving from UNEP/MAP Barcelona Convention Ecosystem Approach (EcAp) policy implementation, the 2023 Mediterranean Quality Status Report (MED QSR) and its Summary for Policy Makers, as well as inputs from the 2025 Marine Strategy Framework Directive (MSFD) Evaluation and its assessment of Programmes of Measures (PoMs) in the Mediterranean Sea, this roadmap outlines strategic vision for achieving Good Environmental Status (GES) across the Mediterranean basin by 2035.

4. Building on the significant achievements in implementing the Ecosystem Approach (EcAp) since its launch in 2008, there is a growing need to place greater emphasis on the use of innovative approaches and tools - such as the Source-to-Sea Management, Marine Spatial Planning, Nature-Based Solutions, Ocean Ecosystem Accounting, Mapping of Coastal and Marine Ecosystems, and the Compendium for Coast and Sea – to enhance the protection, conservation and restoration of coastal ecosystems; integrated coastal zone and ocean management; climate mitigation and adaptation; disaster risk reduction. This highlights the urgent need to build the resilience of coastal and marine ecosystems and to better inform policy - making, development planning, and conservation efforts, thereby accelerating progress towards achieving GES and contributing to implementation of the ocean related SDGs by 2030. It is also essential to strengthen scientific knowledge on deep sea ecosystems.

5. These efforts contribute to strengthening synergies with the implementation of UNEA and its ocean-related resolutions, relevant IMO conventions, the EU Marine Strategy Framework Directive (MSFD), Regional Sea Conventions, and relevant Multilateral Environmental Agreements (MEAs). By advancing the integrated and ecosystem-based approach, the Mediterranean region has the potential to become a model for sustainable marine management - supporting climate resilience and the restoration of ocean health.

2.1 Current Status and Challenges

Achievements to Date:

6. Over the past decade, significant progress has been made under regional and national initiatives aimed at restoring marine ecosystems and improving the health of the Mediterranean Sea and Coast. The Integrated Monitoring and Assessment Programme (IMAP) has strengthened surveillance across biodiversity, pollution – marine litter, and ecosystem health indicators. Regional and national programmes of measures, and several actions on the ground, have been adopted and implemented aiming at achieving Good Environmental Status. It should also be noted that the Mediterranean already hosts many inspiring initiatives proving that ecosystem-based management and sustainable marine governance are both feasible and impactful. These experiences offer valuable lessons for scaling up efforts across the region.

Persistent and Emerging Challenges:

7. Despite achievements, challenges persist and are intensifying, and the Mediterranean Sea remains on the way of achieving GES. Some indicators of biodiversity and pollution show positive trends, while others - notably the status of fish stocks, coastal habitats, and non-indigenous species — are deteriorating or showing insufficient progress:

- Biodiversity loss continues to be a pressing issue. MPAs currently cover only around 9% of the Mediterranean — well below the 30% target — and many existing MPAs suffer from inadequate management effectiveness. The populations of endangered species such as the loggerhead turtle (*Caretta caretta*) and the Mediterranean monk seal (*Monachus monachus*) remain vulnerable. Invasive species like the lionfish (*Pterois miles*) and blue crab (*Callinectes sapidus*) have expanded their range, disrupted native ecosystems and caused economic damage to fisheries. The 2023 MED QSR indicates that the number of established non-indigenous species has doubled since 2012, highlighting the accelerating pressure of biological invasions.
- While a complete 2023 MED QSR GES assessment for eutrophication across all sub-regions was not possible, the impacts of eutrophication—primarily driven by agricultural runoff, untreated urban wastewater, and coastal aquaculture— do not appear to be increasing. Instead, they remain mainly confined to areas historically affected by eutrophication. Harmful algal blooms have been recorded with increasing frequency, disrupting fisheries, aquaculture, and tourism.
- Despite progress in pollution prevention at source, pressures on the Mediterranean Sea persist. Using various assessment methodologies - harmonized to the extent possible — several areas were identified as not achieving Good Environmental Status (GES). Nevertheless, the overall condition of the assessed zones across all four sub-regions generally remains moderate to good. The situation is more concerning with regard to acute pollution events (e.g., slicks from oil, oil products, and hazardous substances), which have a significant impact on biota. These events contribute to some sub-divisions showing even poor to bad conditions.
- Marine litter remains pervasive. Hundreds of tonnes of plastic daily entering the Mediterranean Sea, primarily from major urban centres, other densely populated areas, river discharges and fishing activities. Hotspots of plastic accumulation exemplify the growing magnitude of this issue, and according to the 2023 MED QSR densities remain high, while progress in reducing marine litter inputs remains slow.
- The circulation of the Mediterranean Sea is driven by a combination of external forces—such as wind stress and strong topographic constraints—as well as internal dynamic processes. These forces operate across three predominant and interacting spatial scales: basin scale, sub-basin scale, and mesoscale. Compared to the hydrographic alterations caused by new structures, climate change appears to have a significantly greater impact on habitats and marine ecosystems overall.

- Climate change poses a growing existential threat. The Mediterranean Sea is warming at a rate 20% faster than the global average, leading to shifts in species distribution, mass mortality events of benthic organisms, and the degradation of critical habitats like *Posidonia oceanica* seagrass beds. Ocean acidification, sea-level rise, and increasing extreme weather events compound these impacts, undermining the resilience of marine and coastal ecosystems. The rise in seawater temperature is accelerating the spread of non-indigenous species. Hydrographic changes cause Mediterranean marine habitats to be increasingly endangered, with some at risk of complete extinction. The central and eastern Mediterranean areas are considered more vulnerable to climate change due to increased pressure from invasive species, higher water temperatures and less ocean circulation, which leads to lower levels of dissolved oxygen.

Risks:

- Enhanced governance faces ongoing challenges, including fragmented cooperation, policy incoherence across sectors (e.g., tourism, agriculture, energy), inconsistencies in monitoring and reporting, and challenging enforcement mechanisms, unequal efforts to achieve GES and the ocean related SDGs targets. Inadequate financial and human resources. Political instability, financial constraints, worsening climate and environmental measures that are perceived as unfair, top-down, or economically harmful, local resistance may also undermine implementation.

Opportunities:

Accelerating progress towards achieving Good Environmental Status (GES) by 2035 is an ambitious endeavour also rich in transformative and major opportunities:

- Green Transition Funding create financial opportunities to align economic recovery with marine conservation. Technological Innovation - such as a Satellite remote sensing, AI-based marine monitoring, autonomous underwater vehicles, and blockchain-based fisheries certification - offer powerful new complementary tools to enhance conventional monitoring and assessment procedures, while also contributing to improved enforcement and transparency. Youth Engagement and broader public awareness provide a critical social foundation for long-term stewardship and political support. Finally, sustainable aquaculture, renewable marine energy, eco-tourism, and marine biotechnology can drive Blue Economy Growth and sustainable livelihoods if properly managed.
 - Securing financial resources for marine protection presents both a challenge and an opportunity for innovation and regional cooperation. Public funding — particularly from national budgets — remains essential alongside considerable EU funding instruments applicable across the Mediterranean region, and international environmental financing mechanisms such as the Global Environment Facility (GEF), Green Climate Fund (GCF), Adaptation Fund, and Climate Investment Funds (CIF). Additional support through voluntary contributions from Contracting Parties, bilateral donors' funding arrangements, philanthropic foundations, and private sector investments also plays a crucial role. To be effective, Financing must be predictable, sustainable, and readily accessible, particularly for developing Mediterranean countries.
 - Innovative solutions are needed, such as expanding regional trust funds like MedFund, establishing national conservation funds (e.g., Tunisia's Blue Fund), and issuing blue bonds to fund restoration and pollution control. Payment for Ecosystem Services (PES) schemes should also be promoted, and private sector engagement must be strengthened through investment pipelines, risk mitigation, and performance standards to drive sustainable marine investments.
8. Successfully navigating these risks while leveraging these opportunities requires adaptive, inclusive, evidence-based, and transparent governance frameworks.

2.2 A Vision for 2035

9. The vision for the Mediterranean by 2035 is clear: a clean, healthy, resilient, and biodiverse marine ecosystem that supports sustainable livelihoods and socio-economic development. Under the Ecosystem Approach (EcAp) Policy and Roadmap for the Mediterranean (2026-2035), this vision is further reinforced.

10. This vision ensures alignment with the Mediterranean Strategy for Sustainable Development (2026-2035), and the 2030 Agenda for Sustainable Development.

11. Achieving GES will require a fundamental shift: not merely slowing degradation, but actively restoring marine ecosystems and addressing systemic socio-economic drivers of change. The vision must therefore encompass ecological restoration, climate adaptation, considerable pollution reduction, biodiversity protection, and sustainable use of marine resources.

12. Achieving this vision requires a systemic transformation that integrates scientific evidence, traditional knowledge, community engagement, sustainable investment, and bold political leadership. It demands that all sectors – from fisheries and tourism to energy and transport – transition toward sustainability and resilience, with effective enforcement mechanisms, cross-sectoral integration, and transparent reporting frameworks.

3. The Step Approach for the Implementation of EcAp Policy in the Mediterranean

13. The following six (6) steps are proposed to support the implementation of EcAp Policy and Roadmap in the Mediterranean for the upcoming period 2026 to 2035:

Step I: Definition of an Ecological Vision for the Mediterranean.

Step II: Setting Common Mediterranean Strategic Goals.

Step III: Development of a Set of Ecological Objectives and Common Indicators with GES Definitions and Targets corresponding to the Vision and Strategic Goals.

Step IV: Implementation of National IMAP¹-based Monitoring Programmes for ongoing Assessment and regular updating of Targets.

Step V: Preparation and Issuance of the Mediterranean Quality Status Report (MED QSR)

Step VI: Development and Review of relevant National Action Plans (NAPs) and/or Programmes of Measures (PoMs)

Step I: Definition of an Ecological Vision for the Mediterranean

14. The following Ecological Vision is proposed, in line with the vision of the UNEP/MAP Mid-Term Strategy (MTS) 2022-2027 ([Decision IG.25/1](#)):

“Progress towards a healthy, clean, pollution free sustainable and climate resilient Mediterranean Sea and Coast with productive and biologically diverse marine and coastal ecosystems, where the 2030 Agenda for sustainable development and its Sustainable Development Goals (SDGs) are achieved through the effective implementation of the Barcelona Convention, its Protocols and the Mediterranean Strategy for Sustainable Development for the benefit of people and nature.”

¹ Integrated Monitoring and Assessment Programme for the Mediterranean Sea and Coast

Step II: Setting Common Mediterranean Strategic Goals

15. The following Strategic Goals are expected to support and enhance the implementation of EcAp Policy and Roadmap in the Mediterranean for the period 2026 to 2035:

- a) To protect, enhance environmental conditions allowing natural recovery and, where practicable based on national priorities, restore the structure and function of marine and coastal ecosystems thus also protecting biodiversity, in order to achieve and maintain Good Environmental Status and allow for their sustainable use.
- b) To reduce pollution in the marine and coastal environment so as to minimize impacts on and risks to human and/or ecosystem health and/or uses of the sea and the coasts and reduce the pollution from different sources.
- c) To prevent, reduce and manage the vulnerability of the sea and the coasts to risks induced by human activities, including climate change and natural events.

Step III: Development of a Set of Ecological Objectives and Common Indicators with GES Definitions and Targets corresponding to the Vision and Strategic Goals.

16. A set of 11 Ecological Objectives (EOs) and related Common and/or Candidate Indicators, including GES Definitions and Targets are in place in the framework of EcAp Policy Implementation and related Integrated Monitoring and Assessment Programme (IMAP) for the Mediterranean Sea and Coast, as detailed in Appendix 1.

Step IV: Implementation of National IMAP-based Monitoring Programmes for ongoing Assessment and regular updating of Targets.

17. Since 2016 national IMAP-based monitoring programmes have been developed and are operational in line with the regional IMAP and its respective Ecological Objectives and Common Indicators. They are expected to be updated till 2026 to streamline the updated IMAP to be approved by COP 24 (Cairo, Egypt, 2-5 December 2025).

Step V: Preparation and Issuance of the Mediterranean Quality Status Report (MED QSR)

18. The Mediterranean Quality Status Report (MED QSR) series builds on a robust conceptual foundation and nationally sourced, quality-assured data submitted by the Contracting Parties to the Barcelona Convention through IMAP InfoSystem or other reliable sources, to provide an evidence-based reliable assessment of Good Environmental Status (GES) of the Mediterranean Sea and coast, based on a GES /non-GES approach, as defined in the framework of the ecosystem approach and related Integrated Monitoring and Assessment Programme IMAP.

19. The preparation of the MED QSRs has seen coordinated efforts on data acquisition covering a series of Ecological Objectives and related Common Indicators of IMAP. A noteworthy fact about the MED QSRs is the way they embody the scale-shifting endeavors that is required for effective environmental assessment. The reports blend national data with patterns observed at the regional level. By distilling new knowledge, the report also contributes to other relevant assessment exercises at global, regional and national levels, and the implementation of respective policies and regulatory framework.

20. To date, two (2) different iterations of MED QSR have been issued in 2017 ([Decision IG.23/6 of COP 20](#)) and 2023 ([Decision IG.26/3 of COP 23](#)), whereas this series of reports is planned to be issued following a six (6) year data generation and assessment cycle followed by a 2-year period for document preparation and review through the respective UNEP/MAP governing bodies.

Step VI: Development and Review of relevant National Action Plans (NAPs) and/or Programmes of Measures (PoMs)

21. National Action Plans (NAPs) and/or Programmes of Measures (PoMs) have been developed since 2016 for all Contracting Parties to the Barcelona Convention ([Decision IG.22/8](#) of COP 19) and were updated in 2025.

22. A number of important and targeted legally-binding measures with timelines have been adopted in the Mediterranean since 2013 in the framework of the six (6) legally-binding Regional Plans and of the Post-2020 SAPBIO were adopted for the Mediterranean since 2013, as detailed in Appendix 3:

- Regional Plans on Urban Wastewater Treatment and Sewage Sludge Management in the Framework of Article 15 of the Land Based Sources Protocol ([Decision IG.25/8](#)) Regional Plan on Stormwater Management in the framework of Article 15 of the Land-Based Sources and Activities Protocol (LBS Protocol) ([Decision IG.26/8](#))
- Amendments to the Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol ([Decision IG.25/9](#))
- Regional Plan on Agriculture Management in the framework of Article 15 of the Land-Based Sources and Activities Protocol ([Decision IG.26/6](#))
- Regional Plan on Aquaculture Management in the framework of Article 15 of the Land-Based Sources and Activities Protocol ([Decision IG.26/7](#))
- Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management of Natural Resources in the Mediterranean Region (Post-2020 SAPBIO) ([Decision IG.25/11](#))

3.1 Timeline for Implementing Ecosystem Approach Policy and Roadmap

23. A timeline extended from 2026 to 2035, including projected outputs and key milestones of EcAp Policy and Roadmap implementation is presented in Appendix 2.

3.2 Governance Mechanism for the Implementation of the Ecosystem Approach in the Mediterranean

24. A governance mechanism has been set in place since 2021 to support the implementation of the EcAp in the Mediterranean ([Decision IG.25/03](#)).

25. The Ecosystem Approach Coordination Group (EcAp CG), consisting of MAP Focal Points, has a key role in providing guidance and supervising EcAp implementation:

- a) On the delivery of the EcAp, making sure that all elements for its implementation are taken into account, weighting of priorities and resource implications; and
- b) In coordinating Barcelona Convention-UNEP/MAP's facilitation role, in support of Contracting Parties in their implementation of EcAp.

26. Two types of Correspondence Groups are formed in the process of application of EcAp in the Mediterranean and to support EcAp Coordination Group:

- a) The Correspondence Group on Monitoring (CORMON) composed of national experts designated by the Contracting Parties and coordinated by Barcelona Convention-UNEP/MAP Coordinating Unit and respectively MED POL, SPA/RAC and PAP/RAC (depending on the IMAP cluster), working to ensure efficient coverage and in-depth discussions and analysis regarding integrated monitoring and assessment.
- b) The Correspondence Group on Economic and Social Analysis (COR ESA) is composed of national experts designated by the Contracting Parties and invited experts and coordinated by Barcelona Convention-UNEP/MAP Coordinating Unit and PlanBleu/RAC. It develops a socioeconomic analysis of marine ecosystems uses, focusing on priority sectors such as fisheries, aquaculture, maritime

transport, recreational activities, and oil industry and offshore and address as appropriate the socioeconomic aspects related to the formulation and implementation of programmes of measures to achieve/maintain Good Environmental Status (GES)

27. Informal Online Working Groups (OWG) are composed of experts and scientists nominated by the Contracting Parties and experts mobilized by the Secretariat and respective MAP Components. The composition should be restricted in number, with well-balanced geographical representation. The agenda of the Informal OWG and the timeline for their operationality is defined by the respective CORMONs. The Informal OWG report to CORMON and do not replace CORMONs.

28. Every effort to be made by the Secretariat to streamline and ensure the technical documents are cleared by the respective CORMON and MAP Component/Thematic Focal Points in line with their mandates, as appropriate, before they are submitted to the decision-making bodies. To this aim, the EcAp CG may decide on terms of references including potential list/type of documents for the technical bodies also addressing the need for the effective interaction among different bodies.

29. For Science-Policy Interface (SPI), effort should be made to promote SPI for IMAP implementation in the Mediterranean.

30. The “Terms of Reference for the CORMONs, CORESA and Online Working Groups and Flow of Interaction between Ecosystem Approach and MAP Governing Bodies” are detailed and presented in Appendices 4 and 5 to the present document.

Appendix 1: List of Ecological Objectives, Common Indicators, GES Definitions and Proposed Targets

Ecological Objective 1 (EO1): Biological diversity is maintained or enhanced. The quality and occurrence of coastal and marine habitats and the distribution and abundance of coastal and marine species are in line with prevailing physiographic, hydrographic, geographic and climatic conditions			
Operational Objective	Indicator	GES Definition	GES Targets
1.1 Key coastal and marine habitats are not being lost (Benthic and Pelagic Habitats ²)	1.1.1 Habitat distributional range (Common Indicator 1)	The habitat is present in all its natural distributional range.	State: - The ratio Natural / observed distributional range tends to 1 Pressure - Decrease in the main human causes of the habitat decline
	1.1.2 Condition of the habitat-defining species and communities (Benthic Habitats) (Common Indicator 2)	The population size and density of the habitat-defining species, and species composition of the community, are within reference conditions ensuring the long-term maintenance of the Habitat	State: - No human induced significant deviation of population abundance and density from reference conditions. - The species composition shows a positive trend towards reference condition over an increasing proportion of the habitat (for recovering habitats)
	1.1.3 Condition of the habitat-defining species and communities (Pelagic Habitats ³) (Common Indicator 2)	(under development)	(under development)

² The habitat type, including its biotic and abiotic structure and its functions, is not adversely affected due to anthropogenic pressures (e.g. typical species composition and their relative abundance, absence of particularly sensitive or fragile species or species providing a key function, size structure of species). Pelagic broad habitat types (variable salinity, coastal, shelf and oceanic/beyond shelf), if present in the region or subregion: 1. other habitat types could be defined by MS for the MSFD; 2. The typology of pelagic habitats represents a general framework that can be adapted and modified by CPs to integrate local ecosystems features and dynamics

³ Phytoplankton and zooplankton abundance, biomass, communities' composition, functional groups provide good means to identify changes in key groups at the plankton community level.

1.2 Species distribution is maintained (marine mammals, birds, reptiles)	1.2.1 Distributional range (marine mammals) (Common Indicator 3)	<u>Cetaceans</u>: The species are present in all their natural distributional range. <u>Monk Seal</u>: Monk Seal is present along recorded Mediterranean coasts with suitable habitats for the species.	State: • <u>Cetaceans</u>: The distribution of cetaceans remains stable or expanding and the species that experienced reduced distribution in the past are in favorable status of conservation and can recolonize areas with suitable habitats. • <u>Monk Seal</u>: The distribution of Monk Seal remains stable or expanding and the species is recolonizing areas with suitable habitats. Pressure/Response: • Human activities having the potential to exclude marine mammals from their natural habitat within their range area or to damage their habitat are regulated and controlled. • Conservation measures implemented for the zones of importance for cetaceans. • Fisheries management measures that strongly mitigate the risk of incidental taking of monk seals and cetaceans during fishing operations are implemented.
	1.2.2 Distributional range (birds) (Common Indicator 3)	The species continues to occur in all their Mediterranean natural habitat.	State: • No significant reduction in the population distributional range in the Mediterranean in all indicator species which are listed as least-concerned (LC); No significant reduction in the population distributional range in the Mediterranean in all indicator species which are currently listed with conservation concern. • New colonies are established, and the population is encouraged to spread among several alternative breeding sites, especially for species with conservation concern.
	1.2.3 Distributional range (reptiles) (Common Indicator 3)	The species continues to occur in all its natural range in the Mediterranean, including nesting, mating, feeding and wintering and developmental (where different to those of adults) sites	State: • Turtle distribution is not significantly affected by human activities • Turtles continue to nest in all known nesting sites Pressure/Response: • Protection of known nesting, mating, foraging, wintering and developmental turtle sites. • Human activities having the potential to exclude marine turtles from their range area are regulated and controlled. • The potential impact of climate change is assessed

1.3 Population size of selected species is maintained (marine mammals, birds, reptiles)	1.3.1 Population abundance (marine mammals) (Common Indicator 4)	<u>Cetaceans</u> : The species population has abundance levels allowing to qualify to Least Concern Category of IUCN.	State: - No human-induced mortality is causing a decrease in breeding population size or density - Populations recover towards natural levels.
		<u>Monk Seal</u> : Number of individuals by colony allows to achieve and maintain a favorable conservation status. ⁴	State: Continual recovery of population density
	1.3.2 Population abundance (birds) (Common Indicator 4)	The species population has abundance levels allowing qualifying to Least Concern Category of the IUCN Red List or has abundance levels that are improving and moving away from the more critical IUCN category.	State: - No human induced decrease in population abundance. Population recovers towards natural levels where depleted. - The total number of individuals is sparse enough in different spots.
	1.3.3 Population abundance (reptiles) (Common Indicator 4)	The population size allows to achieve and maintain a favorable conservation status taking into account all life stages of the population.	State: - No human induced decrease in population abundance - Population recovers towards natural levels where depleted

1.4 Population condition of selected species is maintained (marine mammals, birds, reptiles)	1.4.1 Population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates) (marine mammals) (Common Indicator 5)	<u>Cetaceans</u>: preliminary assessment of incidental catch, prey depletion and other human induced mortality followed by implementation of appropriate measures to mitigate these threats <u>Monk Seal</u>: decreasing trends in human induced mortality (e.g., direct killings, pupping/resting habitat /disturbance/occupation)	State: - Decreasing trends in human induced mortality Pressure/Response: <u>Cetaceans</u>: Appropriate measure implemented to mitigate incidental catch, prey depletion and other human induced mortality <u>Monk Seal</u>: Appropriate measures implemented to mitigate direct killing and incidental catches and to preclude habitat destruction.
	1.4.2 Population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates) (birds) (Common Indicator 5)	Species populations are in good conditions: Natural levels of breeding success & acceptable levels of survival of young and adult birds.	State: - Populations of all taxa, particularly those with IUCN threatened status are maintained in long-term following the indication of population models. Pressure/Response: - Incidental catch mortality and other anthropogenic pressures are at negligible levels, particularly for species of conservation concern
	1.4.3 Population demographic characteristics (e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates) (reptiles) (Common Indicator 5)	Low mortality induced by incidental catch. Favorable sex ratio and no decline in hatching rates.	Response: Measures to mitigate incidental catches in turtles implemented

Ecological Objective 2 (EO2): Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem			
Operational Objective	Indicator	GES Definition	GES Targets
2.1 Invasive non-indigenous species introductions are minimized	2.1.1 Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species (NIS) particularly invasive, non-indigenous species notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species) (Common Indicator 6)	Decreasing abundance of introduced NIS in risk areas	State: Abundance of NIS introduced by human activities reduced to levels giving no detectable impact.

Ecological Objective 3 (EO3) ⁵ : 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			
Operational Objective	Indicator	GES Definition	GES Targets
3.1. The Spawning Stock Biomass is at a level at which reproduction capacity is not impaired	3.1. Spawning Stock Biomass (Common Indicator 7)	Achieving or maintaining good environmental status requires that SSB values are equal to or above SSB _{MSY} , the level capable of producing maximum sustainable yield.	State: • $B > B_{thr}$
3.2. Total catch of commercial species does not exceed the Maximum Sustainable Yield (MSY) and the bycatch is reduced.	3.2. Total landing (Common Indicator 8)	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.	State: • Long-Term High Yields • $Catch < MSY$ Pressure: • Reduction of IUU catch • Minimization of discarding and incidental catch of vulnerable species
3.3. Fishing mortality in the stock does not exceed the level that allows MSY ($F \leq F_{MSY}$).	3.3 Fishing mortality (Common Indicator 9)	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	Pressure: • F_{MSY} • $F_{0.1}$ a proxy of F_{MSY} (more precautionary)
3.4. Fishing effort should be reduced by means of a multi-annual management plan until there is an evidence for stock recovery	3.4 Fishing effort (Common Indicator 10)	Total effort does not exceed the level of effort allowing the Maximum Sustainable Yield (MSY)	(under development)

⁵ Regarding EO3, the Common Indicators are under further development and assessment by GFCM.

3.5. 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.	3.5 Catch per unit effort (CPUE) (Common Indicator 11)	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	(under development)
3.6 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	3.6 Bycatch of vulnerable and non-target species (EO1 and EO3) (Common Indicator 12)	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.	(Work in progress within GFCM) State: <u>Cetaceans</u>: No unsustainable impact at population level. Decreasing trends in human induced mortality. Pressure: <u>Cetaceans</u>: Appropriate measure implemented to mitigate incidental catch, prey depletion and other human induced mortality. Monk seal: Appropriate measures implemented to mitigate direct killing and incidental catches and to preclude habitat destruction.

Ecological Objective 4 (EO4): 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			
Operational Objective	Indicator ⁶	GES Definition	GES Targets
4.1 Diversity of ecosystem and dynamics across all trophic groups can ensure long-term biomass-abundance of the species	4.1.1-Biomass or abundance of species/genera/taxa or trophic groups ⁷ (Candidate Common Indicator 29)	(under development)	(under development)
	4.1.2 Average of Mean Trophic Level of species/genera/taxa or trophic groups from biomass and/or catches (Candidate Common Indicator 30)	(under development)	(under development)
	4.1.3 Biodiversity indices (Candidate Common Indicator 31)	(under development)	(under development)
4.2 Proportion of selected group of species is balanced as in healthy food webs	4.2.1 Pelagic/Demersal ratio (Candidate Common Indicator 32)	(under development)	(under development)
	4.2.2 NIS/Demersal ratio (Candidate Common Indicator 33)	(under development)	(under development)
	4.2.3 Zooplankton/ phytoplankton ratio (Candidate Common Indicator 34)	(under development)	(under development)
	4.2.4 Size distribution of trophic groups (Candidate Common Indicator 35)	(under development)	(under development)
	4.2.5 Production of Megafauna (*Megafauna variables from EO1) (Candidate Common Indicator 36)	(under development)	(under development)

⁶ (a) Biomass (i.e. Kg/km²), abundance (i.e. Number of individuals/km²) and size (i.e. total length of body) of species can be obtained for example for many demersal species from MEDITS data and GFCM stock assessment reporting datasets. (b) commercial catches of target species and production of fisheries can be obtained for example by using FAO data (FishstatJ). (c) Trophic level of species can be obtained from large dataset such as Fishbase and Lifebase. Indicators belonging to objective 4.1 are useful for a first evaluation of potential anthropogenic impact on the structure of food webs as a whole system by specifically looking at simple data such as biomass or abundance of species groups (indicator 4.1.1), trophodynamics (indicator 4.1.2) and diversity such as alpha and beta indices (indicator 4.1.3). Indicators belonging to operational objective 4.2 focus on some food web compartments to have more specific evidence of potential anthropogenic impacts such as detrimental effect of bottom fisheries and/or eutrophication (indicator 4.2.1), increase of non-indigenous species (indicator 4.2.2), changes in net primary production affecting the base of food webs (indicator 4.2.3 and 4.2.4), depletion of large megafaunal organisms (indicator 4.2.5)

Ecological Objective 5 (EO5): Human-induced eutrophication is prevented, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algal blooms and oxygen deficiency in bottom waters			
Operational Objective	Indicator	GES Definition	GES Targets
5.1 Human introduction of nutrients in the marine environment is not conducive to eutrophication	5.1.1 Concentration of key nutrients in the water column (Common Indicator 13)	Concentrations of nutrients in the euphotic layer are in line with prevailing physiographic, geographic and climate conditions	State: - Reference nutrients concentrations according to the local hydrological, chemical, and morphological characteristics of the un- impacted marine region. - Decreasing trend of nutrients concentrations in water column of human impacted areas statistically defined, considering the boundary limit between GES and non-GES classes of the assessment scales. Pressure: - Reduction of BOD emissions from land-based sources. - Reduction of nutrients emissions from land-based sources.
5.2 Direct and indirect effects of nutrient over-enrichment are prevented	5.2.1 Chlorophyll-a concentration in the water column (Common Indicator 14)	Natural levels of algal biomass, water transparency and oxygen concentrations in line with prevailing physiographic, geographic, and weather conditions	State⁸: - Chlorophyll a concentration in high-risk areas below the boundary limit between GES and non-GES classes of the assessment scales. - Decreasing trend in Chl-a concentrations in high-risk areas affected by human activities. - Index of turbidity below the boundary limit between GES and non-GES classes of the assessment scales to be set upon defining the turbidity assessment criteria⁹. - Increasing trend of transparency in areas impacted by human activities¹⁰. - Dissolved oxygen concentrations in high-risk areas below the boundary limit between GES and non-GES classes of the assessment scales to be set upon defining the oxygen concentrations assessment criteria¹¹. - Increasing trend in dissolved oxygen concentrations in areas impacted by human activities¹².

⁸ Future work should focus on defining high-risk areas, as well as setting reference and boundary values, including GES/non-GES boundary limits, with possible contributions from Online Working Group that may be established for this purpose.

⁹ Transferred from Indicator 5.2.2, Decision IG. 21/3, Annex I

¹⁰ ibidem

¹¹ Transferred from Indicator 5.3.1, Decision IG. 21/3, Annex I. The current revision includes the reinstatement of targets for turbidity, water transparency and dissolved oxygen concentrations, in order to align with the established GES definition for Common Indicator 14 on Chlorophyll-a, as agreed upon in the 2017 MED QSR: "Natural levels of algal biomass, water transparency, and oxygen concentrations in line with prevailing physiographic, geographic, and weather conditions. As originally defined in Decision IG.21/3, the present document reconsiders the original GES definitions which identified turbidity, water transparency and dissolved oxygen as supporting parameters in the assessment of GES based on chlorophyll-a concentrations.

¹² ibidem

Ecological Objective 6 (EO6): Sea-floor integrity is maintained, especially in priority benthic habitats			
Operational Objective	Indicator	GES Definition	GES Targets
6.1 All benthic broad habitat types maintain their natural extent, with limited loss due to anthropogenic pressures	6.1.1 Extent of physical loss of natural habitat (Common Indicator 37)	The extent of loss of each habitat type, resulting from anthropogenic pressures, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.	Extent of physical loss per habitat type does not exceed [X%] of each habitat's natural extent.
6.2 All benthic broad habitat types maintain their natural structure, functions and biodiversity	6.2.1 Extent of adverse effects on benthic habitat ¹³ (Common Indicator 38)	The extent of adverse effects from anthropogenic pressures on the condition of each habitat type, including alteration to its biotic and abiotic structure and its functions (e.g., its typical species composition, absence of particularly sensitive or fragile species or species providing a key function, size structure of species; carbon sequestration capacity), does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.	Extent of adverse effects from anthropogenic pressures ¹⁴ per habitat type does not exceed [Y%] of each habitat's natural extent.

¹³ This may comprise several indicators which address specific pressures

¹⁴ Value Y% for adverse effects includes value X% for physical habitat loss. Value Y% encompasses any loss of biogenic habitat and changes to habitats at EUNIS level 2 that are defined as habitat loss under MSFD ([MSFD GD19, 2022, version 12-12-2023](#)) because such losses can be more much extensive than losses due to physical structures.

Ecological Objective 7 (EO7): Alteration of hydrographic conditions does not adversely affect coastal and marine ecosystems.			
Operational Objective	Indicator	GES Definition	GES Targets
7.1 Impacts to the marine and coastal ecosystem induced by climate variability and/or climate change are minimized ¹⁵	7.1.1 Large scale changes in circulation patterns, temperature, pH, and salinity distribution (Candidate Common Indicator 39)	Ecosystems are resilient enough to adapt to climate change.	Anthropogenic impacts which may alter ecosystems' adaptive capacity are reduced.
	7.1.2 Long term changes in sea level (Candidate Common Indicator 40)		
7.2 Alterations due to permanent constructions on the coast and watersheds, marine installations and seafloor anchored structures are minimized	7.2.2 Location and extent of the habitats potentially impacted by hydrographic alterations (Common Indicator 15)	Negative impacts due to new structure are minimal with no influence on the larger scale coastal and marine system	Planning of new structures takes into account all possible mitigation measures in order to minimize the impact on coastal and marine ecosystem and its services integrity and cultural/historic assets. Where possible, promote ecosystem health.

¹⁵ The Ad-Hoc Meeting of the Ecosystem Approach Correspondence Group on Monitoring (CORMON) Coast and Hydrography, organized online on 30 September 2025 at the request of the MAP Focal Points meeting (Athens, Greece, 16-19 September 2025): (a) agreed to include the two (2) existing Common Indicators under EO7 (i.e., 7.1.1 and 7.1.2) as IMAP Candidate Common Indicators 39 and 40; and (b) committed to consider the possible upgrade of these indicators in two-years' time to Common Indicators at COP 25 (December 2027), pending increased scientific knowledge, data availability, clarification of assessment methodologies and related capacity building, development of respective Guidance Factsheets, and if need be fine tune indicators titles, GES Definitions and Targets.

Ecological Objective 8 (EO8): The natural dynamics of coastal areas are maintained and coastal ecosystems and landscapes are preserved			
Operational Objective	Indicator	GES Definition	GES Targets
8.1 The natural dynamics nature of coastal areas are maintained, and coastal ecosystems and landscapes are preserved ¹⁶	8.1.4 Length of coastline subject to physical disturbance due to the influence of humanmade structures. (Common Indicator 16)	Physical disturbance to coastal areas induced by human activities should be minimized.	Negative impacts of human activities on coastal areas are minimized through appropriate management measures
	8.1.5 Area of restored degraded coastal wetlands (Candidate Common Indicator 41)	Natural dynamics of coastal wetlands is achieved when these areas are restored to a condition that supports their ecological functions, biodiversity, and resilience.	Restoration of at least 50% of the total area of habitats within the wetlands that are not in good condition by 2050
	8.1.6 Extent and frequency of coastal flooding (Candidate Common Indicator 42)	Coastal flooding occurrences are minimized in terms of the frequency and severity of flooding events, and their impacts on coastal ecosystems and human activities are reduced to acceptable levels.	Decreasing the number of flooding events per year or decade; reducing the extent of inundation during each flood event; lowering the socio-economic and environmental damage caused by coastal floods
	8.1.7 Changes in burnt forest areas (Candidate Common Indicator 43)	Wildfires occur within natural ecological thresholds, preventing large-scale destruction while maintaining biodiversity and ecosystem resilience.	Minimizing human-caused fires; ensuring that burnt areas regenerate naturally or through restoration; and keeping fire frequency and intensity low enough to sustain healthy forests, soil, and carbon storage.
8.2 Integrity and diversity of coastal ecosystems, landscapes and their geomorphology are preserved	8.2.1 Land cover change (Common Indicator 25)	Linear coastal development and low-lying terrain coastal development minimized, with perpendicular development being in balance with integrity and diversity of coastal ecosystems and landscapes. Mixed land-use structure achieved in predominantly man- made coastal landscapes.	Proposed targets should be considered as general recommendations to be adapted to regional/local specificities and knowledge: - No further construction within the setback zone and avoid further construction in low-lying coastal terrain - Change of coastal land use structure, dominance of urban land use reversed - Keep, and increase landscape diversity

¹⁶ The Ad-Hoc Meeting of the Ecosystem Approach Correspondence Group on Monitoring (CORMON) on Coast and Hydrography, organized online on 30 September 2025 at the request of the MAP FPs meeting (Athens, Greece, 16-19 September 2025): (a) agreed to include three (3) new Candidate Common Indicators under EO8 (i.e. cCIs 41, 42 and 43); and (b) committed to consider the possible upgrade of these indicators in four-years' time to Common Indicators at COP 26 (December 2029), pending increased scientific knowledge, data availability, clarification of assessment methodologies, training and capacity building, development of respective Guidance Factsheets, and if need be fine tune indicator titles, GES Definitions and Targets. Country specificities and applicability should be taken into account.

Ecological Objective 9 (EO9): Contaminants cause no significant impact on coastal and marine ecosystems and human health			
Operational Objective	Indicator	GES Definition	GES Targets
9.1 Concentration of priority contaminants is kept within acceptable limits and does not increase	9.1.1 Concentration of key harmful contaminants measured in the relevant matrix (Common Indicator 17)	Level of pollution is below a determined threshold defined for the area and species.	State: - Concentrations of specific contaminants below either the boundary limit between GES and non-GES classes of the assessment scales or below reference concentrations (from other sources). - No increasing trends in contaminants concentrations in sediment and biota from human impacted areas, statistically defined. Pressure: - Reduction of contaminants emissions from land-based sources.
9.2 Effects of released contaminants are minimized	9.2.1 Level of pollution effects of key contaminants where a cause-and-effect relationship has been established (Common Indicator 18)	Concentrations of contaminants are not giving rise to negative effects on health status of marine biota	State: - Contaminants effects below thresholds. Pressure: - Decreasing trend in the operational releases of oil and other contaminants from coastal, maritime and offshore activities
9.3 Acute pollution events are prevented, and their impacts are minimized	9.3.1 Occurrence, origin (where possible), and extent of acute pollution events (e.g. slicks from oil, oil products and hazardous substances) and their impact on biota affected by this pollution (Common Indicator 19)	Occurrence of acute pollution events are reduced to the minimum.	Pressure: Decreasing trend in the occurrences of acute pollution events. Achieve the elimination of intentional pollution of the marine environment by oil and other harmful and noxious substances (HNS) and the minimization of accidental discharge of such substances.
9.4 Levels of known harmful contaminants in major types of seafood do not exceed established standards.	9.4.1 Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood (Common Indicator 20)	Concentrations of contaminants are within the regulatory limits for consumption by humans.	State: - Concentrations of contaminants in foodstuffs are below the UNEP/MAP Environmental Assessment Criteria approved for the protection of human health, . - Decreasing trend in the frequency of cases of seafood samples above the approved UNEP/MAP Environmental Assessment Criteria

9.5 Water quality in bathing waters and other recreational areas does not undermine human health	9.5.1 Percentage of intestinal enterococci concentration measurements within established standards (Common Indicator 21)	Concentrations of intestinal enterococci are within established standards	Increasing trend in the percentage of intestinal enterococci concentration measurements that fall in the approved GES categories as established in Decision IG.20/9 and the EU 2006/7 Directive.
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Ecological Objective 10 (EO10): Marine and coastal litter do not adversely affect coastal and marine environment			
Operational Objective	Indicator	GES Definition	GES Targets
10.1 The impacts related to properties and quantities of marine litter in the marine and coastal environment are minimized	10.1.1 Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source) (Common Indicator 22)	Number/amount of marine litter items on the coastline do not have negative impacts on human health, marine life and ecosystem services	Decreasing trend in the number of/amount of marine litter (items) deposited on the coast
	10.1.2 Trends in amounts of litter in the water column, including micro-plastics, and on the seafloor (Common Indicator 23)	Number/amount of marine litter items in the water surface and the seafloor do not have negative impacts on human health, marine life, ecosystem services and do not create risk to navigation	Decreasing trend in the number/amount of marine litter items in the water surface and the seafloor
	10.1.3 Trends in the amount of litter coming from riverine sources (Common Indicator 28)	Number/amount of litter items on riverbanks and water surface in estuaries do not have negative impacts on human health, marine life, ecosystem services and do not create risk to navigation	Decreasing trend in the number/amount of litter items deposited on riverbanks and in water surface in estuaries
10.2 Impacts of litter on marine life are controlled to the maximum extent practicable	10.2.1 Trends in the amount of litter ingested by marine organisms and in the number of individuals entangled in marine litter (Common Indicator 24)	- Amount (g) of marine litter ingested by marine organisms do not alter populations of sentinel organisms - Number of individuals entangled in marine litter do not alter populations of sentinel organisms	- Decreasing trend in the stomach content of the sentinel species. - Decreasing frequency of occurrence of sea turtles entangled in marine litter.

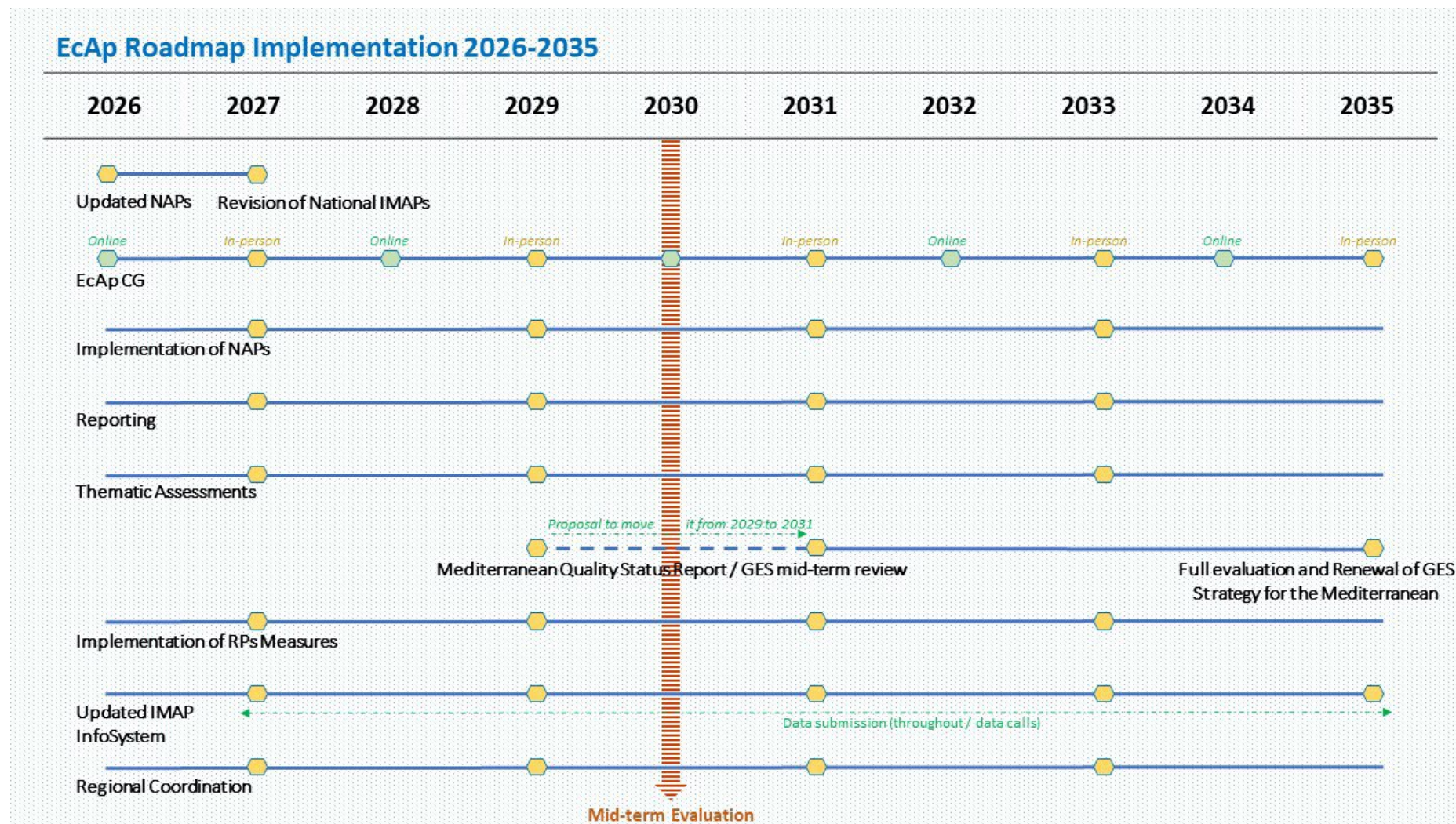
Ecological Objective 11 (EO 11): Noise from human activities causes no significant impact on marine and coastal ecosystems			
Operational Objective	Indicator	GES Definition	GES Targets
11.1 Energy inputs into the marine, environment, especially noise from, human activities, are minimized ¹⁷	11.1.1. Proportion of days and geographical distribution where loud, low, and mid-frequency impulsive sounds exceed levels that are likely to entail significant impact on marine animal (Common Indicator 26) ¹⁸	Noise from human activities causes no significant impact on marine and coastal ecosystems	State: The extent (%) of habitat of noise-sensitive species within the assessment area that is impacted by impulsive noise events, for a limited amount of time, is below thresholds.
11.2. Energy inputs into the marine, environment, especially noise from, human activities, are minimized	11.2.1. Levels of continuous low frequency sounds with the use of models as appropriate (Common Indicator 27) ¹⁹	Noise from human activities causes no significant impact on marine and coastal ecosystems	State: The extent (%) of the assessment area which is above levels causing disturbance to sensitive marine animal is below limits, or such limits are exceeded for a limited amount of time.

¹⁷ Decision IG.20/4, Annex II

¹⁸ Decision IG.20/4, Annex II; IG.22/7

¹⁹ *ibidem*

Appendix 2: Timeline for EcAp Roadmap and Policy Implementation (2026 – 2035)



Appendix 3: Main Scope of Actions Referring to the Ecosystem Approach (EcAp) Policy (2026-2035)

1. **Protect and Restore Marine Biodiversity:** Expanding Marine Protected Areas (MPAs) as well as establishing Other Effective Area Based Conservation Measures (OECMs) with the aim to protect at least 30% of the Mediterranean Sea by 2030 is a cornerstone goal, as reinforced by the 2023 MED QSR. However, beyond spatial targets, effective management must be prioritized. Management plans, surveillance, and enforcement capacity for MPAs requires significant improvement, including their integration into national policies. Ecologically and Biologically Significant Areas (EBSAs) **will continue to guide conservation action**. Restoration of degraded habitats, especially seagrass meadows, in particular the Posidonia seagrass meadows *inter alia*, coralligenous reefs, and coastal lagoons, will enhance biodiversity and bolster climate resilience. The dissemination of best practices should be ensured to effectively prevent, control, and manage non-indigenous species. Priority must be given to reversing habitat degradation trends identified by the 2023 MED QSR, particularly in coastal and estuarine environments. These efforts will contribute to Target 3 of the Kunming-Montreal Biodiversity Framework through the implementation of the Post-2020 SAP BIO for the marine and coastal environment, adopted at the COP 22 of the Barcelona Convention. Decisive and coordinated actions are also needed to promote sustainable fisheries and intensify efforts against illegal, unreported, and unregulated (IUU) fishing, which continues to undermine the sustainable use of marine resources in the Mediterranean.

2. **Prevent and Reduce Pollution:** Emphasis must be placed on addressing pollution at its sources, particular through the implementation of the 2026–2035 National Action Plans (NAPs) and Programmes of Measures (PoMs), serving as key operational policy tools for the effective enforcement on the LBS Protocol-based suite of Regional Plans on Urban Wastewater Treatment and Sewage Sludge Management, Marine Litter Management, Agriculture Management, Aquaculture Management, and Urban Stormwater Management. Their implementation is essential for achieving Good Environmental Status (GES) of the Mediterranean Sea. It is also crucial to ensure coherence between the NAPs and other relevant national policies and strategies. Continued emphasis must be placed on identifying and addressing the environmental impacts stemming from key sectors—agriculture, industry, aquaculture, tourism, infrastructure, energy production, ports, maritime works and structures, and maritime activities—alongside the growing impacts of climate change. These combined pressures continue to hinder progress toward achieving GES of the Mediterranean marine environment.

3. Priority should be given to assessing the impacts of pollution pressures, by ensuring regular monitoring of the IMAP list of mandatory organic and inorganic contaminants, biological effects, microplastics, pharmaceutical residues, and contaminants of emerging concern. This should be complemented by identifying legacy pollutants and encouraging pollution prevention rather relying solely on environmental remediation. Upgrading and further developing assessment criteria for contaminants and biomarkers, including through the integration of toxicity consideration into future Good Environmental Status (GES) assessments, and combining chemical and biological effects monitoring and evaluation—alongside improving data availability and quality—remain key priorities to accelerate the achievement of GES, as highlighted by the 2023 MED QSR and the revised IMAP.

4. Nutrient pollution reduction must be addressed by promoting sustainable agricultural, aquaculture, industry, tourism, upgrading wastewater treatment facilities, limiting fertilizers use, and enforcing stricter pollution controls. Establishing assessment criteria for GES regarding nutrients across all Mediterranean sub-regions, defining water typologies, and ensuring the application of statistical tools for data validation and calculation of assessment criteria are essential. Additionally, incorporating satellite-derived chlorophyll-a data as a supplementary parameter alongside in situ measurements remains a priority to support accelerated progress toward GES related to nutrients, as identified in the 2023 MED QSR and the revised IMAP.

5. The 2023 MED QSR also recommends integrating nature-based solutions, such as restoring wetlands, into pollution control strategies. Following the anticipated adoption of an international legally binding instrument on plastic pollution—which adopts a comprehensive approach addressing the entire lifecycle of plastics—a zero-tolerance approach toward marine litter must be enforced. To achieve this, the implementation of circular economy principles, extended producer responsibility schemes, and robust wastewater and waste management infrastructures is essential. This includes recycling and material recovery facilities, as well as best practices for plastic waste management.

6. Effective implementation of the Particularly Sensitive Sea Area (PSSA) in the North Western Mediterranean Sea—a vital measure for protecting marine mammals from collision risks—requires collective effort. Equally important is the strict enforcement of the Sulfur Emission Control Area (SECA) regulations, alongside exploring the feasibility of establishing a Nitrogen Oxide Emission Control Area (NECA). Together, these actions are essential to minimizing the impacts of maritime transport on human health and the marine environment.

7. ***Prevent and Reduce Adverse Effects on the Coastline and Habitats:*** All countries should continue to invest substantial efforts in monitoring and assessing changes in hydrographical conditions, as well as the adverse impacts of man-made structures on coastal ecosystems and landscapes. Priority should be given to the restoration of threatened coastal ecosystems and habitats, the definition of country-specific, sub-regional, and regional GES conditions, and the development of climate change-related indicators, as well as those measuring coastline changes. Efforts should also include the creation of a Digital Spatial Database and the standardization and harmonization of mapping methods across countries.

8. ***Develop and implement new indicators:*** Achieving GES for Hydrography and Noise Pollution will need comprehensive digital spatial database, simplified reporting methods, consistent monitoring, data quality, management measures, and apply noise reduction technologies for maritime traffic and seismic surveys.

9. ***Enhance Climate Resilience:*** Climate mitigation, adaptation and resilience measures need to be mainstreamed into all policies, including maritime and coastal planning policies, compatible with a trajectory to limit the temperature increase to 1,5°C above pre-industrial level. The 2023 MED QSR stresses the need to protect blue carbon ecosystems, such as seagrass meadows, salt marshes, and mangroves, as key climate mitigation assets. Their protection not only sequesters carbon but also strengthens coastal resilience against erosion and storm surges. Maritime Spatial Planning (MSP) must integrate climate vulnerability assessments to future-proof infrastructure and socio-economic activities. Adaptation strategies must be community-led, ecosystem-based, and inclusive of vulnerable groups such as small-scale fishers and coastal communities.

10. ***Strengthen Governance and Regional Cooperation under the Mediterranean Action Plan – Barcelona Convention:*** Institutional capacities must be enhanced at both national and regional levels. The 2023 MED QSR highlights the need for improved cross-sectoral coordination, integration of marine and coastal policies. It emphasizes the importance of strengthening synergies between the Mediterranean Action Plan – Barcelona Convention, EU MSFD implementation, the Union for the Mediterranean (UfM), the General Fisheries Commission for the Mediterranean, Regional Seas Conventions, RAMOGE, PELAGOS, and other frameworks. Effective implementation of concrete initiatives and actions—such as those within the “A Mediterranean: A Model Sea by 2030” Plan of Action (PAMEX), the BlueMed Partnership, the MedFund, and the WestMED initiative—is critical. Compliance and enforcement mechanisms must be improved to ensure that marine conservation commitments are translated into real-world outcomes. Special attention should be given to youth engagement in environmental issues, including through the modernization of education programs focused on sustainable development and global citizenship, in both formal and informal settings. Transparency, public access to information, public participation - including that of civil society, -and stakeholder co-management approaches need to be mainstreamed into governance systems. All actors—local authorities, international organizations, financial institutions, civil society, academia, and the private sector, including industry—should embody a spirit of solidarity and strengthened regional collaboration to secure a clean, healthy, and sustainable marine environment.

11. ***Strengthening the Science-Policy Interface:*** Efforts will continue to focus on advancing integrated monitoring and assessment of the coastal and marine environment in a cost-effective manner, aligned with the EcAp Ecological Objectives and IMAP Common Indicators. These efforts aim to further enhance a comprehensive and integrated understanding of ecosystem conditions and the impacts of various pressures, including physical loss and disturbance, non-indigenous species, nutrient enrichment, species removal, and others.

12. It is therefore essential to continue embedding the science-policy interface as a cornerstone of EcAp policy implementation. To this end, the continued development and application of science-based management practices remain crucial. In particular, this should be achieved through the promotion and implementation of tools such as Source-to-Sea Management, Marine Spatial Planning, Nature-Based Solutions, Ocean Ecosystem Accounting, Mapping of Coastal and Marine Ecosystems, and the Compendium for Coast and Sea. These tools have considerable potential to enhance the protection, conservation, and restoration of coastal and marine ecosystems; support integrated coastal and ocean management; contribute to climate change mitigation and adaptation; and strengthen disaster risk reduction.

13. ***Enable a Sustainable Blue Economy:*** Economic growth in the Mediterranean must be decoupled from environmental degradation, including through streamlining EcAp into the Marine Spatial Planning (MSP), Integrated Coastal Zone Management (ICZM), coast resilience and source-to-sea approach. Sustainable, low-carbon maritime transport, responsible coastal tourism, offshore renewable energy, and marine biotechnology sectors must be scaled up with clear environmental safeguards. A stronger sustainability criteria for emerging blue economy sectors, such as offshore aquaculture and renewable energy, ensuring that new economic activities do not undermine GES objectives.

14. The above scope of actions is currently addressed through the measures defined in the framework of the legally-binding Regional Plans and Post-2020 SAPBIO, adopted in the framework of UNEP/MAP Barcelona Convention System (Table 1).

Table 1: Specific measures and timeline for their implementation in the framework of the legally-binding Regional Plans and Post-2020 SAPBIO, adopted in the framework of UNEP/MAP Barcelona Convention System.

Regional Plans on Urban Wastewater Treatment and Sewage Sludge Management in the Framework of Article 15 of the Land Based Sources Protocol (Decision IG.25/8)	
Urban Wastewater Treatment	
Art. V (6): All agglomerations are provided with collecting systems for urban wastewater for those with a population equivalent (p.e.) of more than 15,000	2025
Art. V (6): All agglomerations are provided with collecting systems for urban wastewater for those with a population equivalent (p.e.) between 2000 and 15,000	2030
Art. V (7): Adopt emission limit values as provided for in Appendix I of the Regional Plan for: (i) discharge of effluents from urban wastewater treatment plants to the environment; (ii) reuse of reclaimed wastewater for agriculture irrigation; and (iii) discharge of industrial wastewater into collecting systems and urban wastewater treatment plants	2025
Art. V (9): All discharges from agglomerations over than 15,000 p.e. are subject to the extent possible to tertiary treatment provided that the Good Environmental Status (GES) of the recipient environment is maintained	2030
Art. V (9): All discharges from agglomerations of size of between 2000 and 15,000 p.e. are subject to the extent possible to secondary treatment provided that the Good Environmental Status (GES) of the recipient environment is maintained	2030
Art. V (15): Competent authority or appropriate body adopt emission limit values appropriate to the nature of industry discharging industrial effluents to collecting systems connected to urban WWTPs	2025
Art. V (16): Industrial wastewater discharged into collecting systems and urban WWTPs shall meet, as a minimum, the emission limit values	2035
Other Measures²⁰:	
Art. V (10): Promote nature-based solutions to the extent possible for small agglomerations of less than 2000 p.e.	n/a
Art. V (11): Ensure that urban wastewater treatment plants, built to comply with the requirements of Articles 7 and 8, are designed, constructed, operated and maintained to ensure sufficient performance under normal local climatic conditions	n/a
Art. V (12): Ensure that WWTPs are designed to account for seasonal variations of loads; volume and characteristics of the local municipal wastewater; and limitation of pollution of receiving water.	n/a
Art. V (13.i): Implement measures for segregating collecting systems for storm water and municipal wastewater, if technically and economically feasible;	n/a
Art. V (13.ii): Prevent or if not possible minimize sewage and wastewater treatment plants' overflow due to rainwater penetration and flooding;	n/a
Art. V (13.iii): Address impacts of points of discharge of treated wastewater;	n/a
Art. V (13.iv): Adopt tools for conservation of surface water runoff in built environment;	n/a
Art. V (13.v): Reduce pollutant loads and litter in storm water runoff from municipal and industrial sources.	n/a
Art. V (14.i): Promote the reuse of reclaimed wastewater.	n/a
Art. V (14.ii): Implement wastewater reuse systems	n/a
Art. V (17): Take measures to ensure regular monitoring of discharged effluent wastewater, receiving water, reclaimed wastewater and industrial effluents	n/a
Art. VI (18): Collaborate to implement, exchange and share best practices directly or with the support of the Secretariat	n/a
Art. VIII (18): Report on implementation of measures stipulated in this Regional Plan in line with the reporting requirement and timelines provided in Article 26 of the Convention and Article 13, paragraph 2(d) of the LBS Protocol	n/a
Urban Wastewater Treatment and Sewage Sludge Management	
Art. V (7): Contracting Parties shall adopt Class A biosolids suitable for use as fertilizer for agricultural crops having met the pathogen reduction requirements set in Table 1 by treatment processes	2025
Art. V (8): Contracting Parties shall adopt limit values for heavy metals to ensure that use would not affect human health and the environment as provided for in Table 2 (heavy metals in biosolids) and Table 3 (heavy metals in soil)	2025
Art. V (12): Contracting Parties shall establish the required infrastructure for the implementation of the requirements of the applicable measures of this Regional Plan with regards to the use for agricultural land applications and/or for energy/nutrient recovery	2025

²⁰ Other measures that the Contracting Parties legally commit to undertake as per the Regional Plan with no specific deadlines

Other Measures²¹:	
Art. V (7): Set classes for sludge with limit values for pathogen contents for biosolids to ensure that use would not affect human health and the environment	n/a
Art. V (7): Consider adopting Class B biosolids suitable for use as fertilizer for non-food crops having met the pathogen reduction requirements set in Table 1 by treatment processes	n/a
Art. V (9): Specify the conditions for use of sludge in its different states (stabilized, treated, untreated) taking into consideration the proximity of sludge application to various types of human activities and civil structure facilities/natural features	n/a
Art. V (10): In the event that limit values set in Tables 1 to 3 (pathogens and heavy metals in biosolids and soil) cannot be met, the Contracting Parties shall apply alternative means to agricultural use including incineration and regulated landfilling	n/a
Art. V (11): Apply adequate treatment processes to reduce volatile organic compounds and diminish possible odor emissions in the different stages of sludge treatment, transport and application in agriculture and other suitable uses	n/a
Art. V (13): Reduce energy costs and increase water savings during treatment by using BAT and applying BEP	n/a
Art. V (14): Implement technologies targeting energy efficient treatment of sludge such as pretreatment of sludge, solar drying, bio-drying, composting, etc.	n/a
Art. V (15): Promote implementation of adaptation measures for climate change protection	n/a
Art. V (16): Take measures to ensure monitoring of the quality of sewage sludge in the WWTP or after treatment outside the WWTP	n/a
Art. VI (17): Exchange and share best practices directly or with the support of the Secretariat including BAT, BEP, sustainable consumption and production, circular economy, resource efficiency, WEFE Nexus in the design, construction, operation and maintenance of the urban wastewater treatment plants	n/a
Art. VIII (19): Report on implementation of measures stipulated in this Regional Plan in line with the reporting requirement and timelines provided in Article 26 of the Convention and Article 13, paragraph 2(d) of the LBS Protocol	n/a

Regional Plan on Stormwater Management in the framework of Article 15 of the Land-Based Sources and Activities Protocol (LBS Protocol) (Decision IG.26/8)	
Art. V (6a): Establish a regulatory framework to develop stormwater management plans that include nonstructural and structural stormwater control measures	2028
Art. V (6b): Establish a regulatory framework to ensure that stormwater and other wastewater discharge plans, (in case of combined stormwater and sewage collection systems), are based on drainage boundaries instead of administrative boundaries	2028
Art. V (6c): Establish a regulatory framework to regulate future land use development aiming to maintain as much of its natural hydrology in order to minimize stormwater runoff, increase its infiltration, and harvest where possible rainwater for domestic or industrial or any other uses	2028
Art. V (6d): Establish a regulatory framework to identify the sources that contribute pollutants through stormwater and select the measures for pollution reduction	2028
Art. V (6e): Establish a regulatory framework to establish monitoring programmes for recipient water (e.g. lakes, water streams, groundwater, etc.), as appropriate in order to undertake the proper mitigation measures	2028
Art. V (7a): Implement the approved stormwater management plans by considering the implementation of Green Infrastructure (GI) that complements the piped networks in existing urban areas serviced with separate collection systems and Best Management Practices (BMP) in newly developed areas	2030
Art. V (7b): Implement the approved stormwater management plans by considering the construction of separate systems for municipal wastewaters (blackwater from toilets, greywater and industrial wastewater) and urban runoff in newly developed residential, commercial and industrial areas	2030
Art. V (7c): Implement the approved stormwater management plans by reducing the adverse impacts of untreated wastewater overflows discharging from existing combined collection systems of rainwater or snow melt, domestic sewage, and industrial wastewater in the same pipe	2030
Art. V (8a): Implement adequate seasonal maintenance of stormwater collection systems by maintaining an updated inventory list on storm water infrastructure and sources of pollution as well as sewage storage capacity structures	2028
Art. V (8b): Implement adequate seasonal maintenance of stormwater collection systems by planning and implementing regular road maintenance, street sweeping, storm-drain maintenance, stormwater hotline response, and landscape and park maintenance	2028
Art. V (8c): Implement adequate seasonal maintenance of stormwater collection systems by performing regular monitoring of quantity and quality stormwater at key urban stormwater structures	2028

²¹ Other measures that the Contracting Parties legally commit to undertake as per the Regional Plan with no specific deadlines

Amendments to the Regional Plan on Marine Litter Management in the Mediterranean in the Framework of Article 15 of the Land Based Sources Protocol (Decision IG.25/9)	
Art. 8 (12): Take adequate regulatory measures to integrate the informal sector into regulated waste collection and recycling schemes	2028
Art. 8 (13): Establish, as appropriate, a regulatory framework for compostable plastics to be integrated into national waste management policies	2025
Art. 9 (15.2): Apply prevention measures aiming to achieve, to the extent possible, a circular economy for plastics (Regulate the use of primary microplastics, Implement Sustainable Procurement Policies, Establish voluntary agreements, Establish procedures and manufacturing methodologies, Identify single-use plastic products, Set targets to phase out production and use, increase the reuse and recycling, Phase-out chemical additives used in plastic products, Promote the use of recycled plastics, substitute plastics, Implement standards for product labelling, Establish dedicated collection and recycling schemes, minimize the amount of marine litter associated with fishing/aquaculture, Scale-up and replicate sustainable models)	2025
Art. 9 (15.3.a): Base urban solid waste management on reduction at source, applying the following waste hierarchy as a priority order in waste prevention and management legislation and policy: prevention, preparing for re-use, recycling, other recovery, e.g. energy recovery and environmentally sound disposal	2025
Art. 9 (15.3.b): Implement adequate waste reducing/reusing/recycling measures in order to reduce the fraction of plastic packaging waste that goes to landfill or incineration without energy recovery	2019
Art. 9 (15.3.c): Take the necessary measures to close to the extent possible the existing illegal dump sites on land in the area of the application of this Regional Plan	2020
Art. 9 (15.3.d): Identify and, to the extent possible, restore and contain, the coastal landfills that are a source of marine litter	2027
Art. 9 (15.3.f): Identify and assess impacts of marine litter accumulations in upstream regions of rivers and their tributaries, and apply measures to prevent or reduce their leakage into the Mediterranean	2025
Art. 9 (15.4.h): Explore and implement, to the extent possible, ways and means to charge reasonable cost for the use of port reception facilities or when applicable, apply No-Special-Fee system	2017
Art. 9 (15.4.i): Implement targeted measures aiming at preventing and reducing marine litter impact in Marine Protected Areas (MPAs) and Specially Protected Areas of Mediterranean Importance (SPAMIs)	2025
Art. 9 (15.4.j): Explore and implement to the extent possible “Gear marking to indicate ownership” concept and “reduced fishing catches through the use of environmental neutral upon degradation of nets, pots and traps concept	2017
Art. 9 (15.4.k): Apply cost-effective measures to prevent any marine littering from dredging activities	2020
Art. 10 (16.a): Explore and implement to the extent possible the identification in collaboration with relevant stakeholders’ accumulations / hotspots of marine litter and implementation of national programmes on their regular removal and sound disposal	2019
Art. 10 (16.b): Implement National Marine Litter Cleanup Campaigns on a regular basis and evaluate their effectiveness	2030
Art. 10 (16.c): Implement Marine Litter Cleanup Campaigns on a regular basis driven by beach; concessionaries/ managers/ local authorities, including outside the touristic season	2030
Art. 10 (16.d): Participate in International Coastal Cleanup Campaigns and Programmes	2019
Art. 10 (16.e): Apply as appropriate ‘Adopt-a-Beach’ or similar practices and enhance public participation role with regard to marine litter management	2019
Art. 10 (16.f): Apply Fishing for Litter in an environmentally sound manner, based on agreed guidelines and best practice, in consultation with the competent international and regional organizations and in partnership with fishermen and ensure adequate collection, sorting, recycling and/or environmentally sound disposal of the fished litter	2019
Art. 10 (16.g): Charge reasonable costs for the use of port reception facilities or, when applicable apply No-Special-Fee system, in consultation with competent international and regional organizations, when using port reception facilities for implementing the measures	2019
Art. 10 (17): Explore and implement to the extent possible the “Fishing for Litter” environmentally sound practices, in consultation with the competent international and regional organizations, to facilitate cleanup of the floating litter and the seabed from marine litter caught incidentally and/or generated by fishing vessels in their regular activities including derelict fishing gears	2017
Art. 10 (18): Explore and implement targeted activities for the localization and retrieval, and where possible, reuse or recycling of derelict fishing gear including through new environmentally sustainable technologies	2025
Art. 11 (19 to 21): Assessment of marine litter in the Mediterranean	2029

Art. 12 (22.b): Establish the Regional Data Base on Marine Litter which should be compatible with other regional or overarching databases	2016
Art. 12 (22.c): Establish Expert Group on Regional Marine Litter Monitoring Programme	2014
Art. 12 (23) : Design National Monitoring Programme on Marine Litter	2017
Art. 12 (25): Prepare the Guidelines for the preparation of the National Marine Litter Monitoring Programmes	2014
Art. 19 (35) : Prepare regional report on the implementation of the Regional Plan	2029
Other Measures²²:	
Art. 7 (9): Consider updating periodically the LBS NAPs to integrate marine litter in accordance with the provisions of this Regional Plan and other means to perform their obligations	n/a
Art. 8 (11.a): Ensure institutional coordination, where necessary, among the relevant national policy bodies and relevant regional organizations and programmes, in order to promote integration	n/a
Art. 8 (11.b): Ensure close coordination and collaboration between national, regional and local authorities in the field of marine litter management	n/a
Art. 9 (15.1) Apply to the extent possible instruments needed to regulate and prevent marine litter pollution including plastic waste from land-based and sea-based sources, in particular the implementation of economic instruments, bans and design requirements, EPR, safe/formal markets for recycled plastics, fiscal and economic incentives, innovative business practices, best practices to create incentives)	n/a
Art. 9 (15.3.e): Apply enforcement measures to combat dumping, littering on the beach, illegal sewage disposal from land sources in the sea, the coastal zone and rivers	n/a
Art. 9 (15.3.g): Apply enforcement measures to prevent, reduce and sanction illegal dumping and illegal littering in accordance with national and regional legislation, in particular on coastal zones and rivers	n/a
Art. 9 (15.4.l): Take the necessary measures to ensure that cruise ships flying their flag or entering their ports implement the procedures for minimizing, collecting, storing, processing and disposing of garbage	n/a
Art. 9 (15.4.m): Take the necessary measures to promote best practices to prevent plastic waste and particularly single use plastic products in tourism and leisure activities including cruise shipping, including through regional cooperation	n/a
Art. 9 (15.4.n): Implement measures on prevention, response and remediation regarding litter from maritime accidents, including containers lost at sea	n/a
Art. 12 (24): Design National Monitoring Programme on Marine Litter to include: (a) harmonization and consistency with the integrated regional monitoring programme based on EcAp; (b) the need for litter monitoring in high sensitivity areas (endangered species, key habitats, etc.), and in Specially Protected Areas in the Mediterranean (SPAMIs); and (c) the need for litter monitoring in high sensitivity areas (endangered species, key habitats, etc.), and in Specially Protected Areas in the Mediterranean (SPAMIs)	n/a
Art. 14 (27): Prepare specific guidelines, taking into account where appropriate existing guidelines, to support and facilitate the implementation of measures provided for in articles 9 and 10 of the Regional Plan	n/a
Art. 16 (29): Enhance public awareness and education	n/a
Art. 17 (31): Encourage appropriate involvement of, and partnerships with, various stakeholders	n/a
Art. 18 (33): Cooperate directly or with the assistance of the Secretariat or the competent international and regional organizations to address transboundary marine litter cases	n/a

**Regional Plan on Agriculture Management in the framework of Article 15
of the Land-Based Sources and Activities Protocol (Decision IG.26/6)**

Art. V (6a): Establish a regulatory framework with the objective to reduce and further prevent pollution caused or induced by nutrients discharged from agricultural activities	2028
Art. V (6b): Establish a regulatory framework with the objective to reduce and further prevent pollution caused or induced by irrigation water runoff and percolation	2028
Art. V (6c): Establish a regulatory framework for Integrated Pest Management as one of the tools that contribute to low-pesticide-input which keeps the use of pesticides only to levels that are economically and ecologically justified	2028
Art. V (6d): Establish a regulatory framework for Good management practices that contribute to reducing plastic waste generation from agricultural activities in the context of sustainable consumption and production and circular economy	2028
Art. V (7): Establish extension/advisory services, training programmes and awareness raising campaigns for farmers in order to promote implementation of the appropriate measures on the basis of the regulatory framework established as per Paragraph (6)	2030

²² Other measures that the Contracting Parties legally commit to undertake as per the Regional Plan with no specific deadlines

Art. V (8): Enact support mechanisms to enable farmers to implement, as applicable, the appropriate measures for reducing inputs of pollutants and other wastes from agricultural activities on the basis of the regulatory framework established as per Paragraph (6)	2030
Art. V (9): Designate “vulnerable zones” as all known areas of agricultural land which drain into, and contribute to eutrophication of, coastal waters	2030
Art. V (10): Implement measures based on Good Agricultural Practices that contribute to the preservation of the health of the natural systems; further to application of smart strategies to enhance the water, energy and food Nexus; while considering the opportunities and synergies of all systems	2030

**Regional Plan on Aquaculture Management in the framework of Article 15
of the Land-Based Sources and Activities Protocol (Decision IG.26/7)**

Art. V (6): Establish a regulatory framework that sets the operational requirements to be met by aquaculture facilities as a precondition to operate	2027
Art. V (7a): Establish institutional structures and take measures to enforce, as appropriate, the adopted operational requirements addressing the pollution control aspects	2028
Art. V (7b): Establish institutional structures and take measures to provide the framework conditions to encourage aquaculture facilities to adapt their operations further to BAT in aquaculture operations	2028
Art. V (8a): Take measures to verify that aquaculture facilities have established operational processes in order to control and reduce the release of potentially detrimental substances to the marine environment	2030
Art. V (8b): Take measures to verify that aquaculture facilities have established operational processes in order to implement measures to minimize pollution originating from aquaculture activities in the water column and sediments	2030
Art. V (9): Adopt regulations for measures that promote the sustainability of aquaculture in terms of fostering responsible, economically viable, environmentally sustainable aquaculture	2027
Art. V (10): Implement measures promoting responsible, economically viable, environmentally sustainable aquaculture as per the regulated aspects	2030
Art. V (11): Regulate key aspects contributing to the generation of plastic waste from aquaculture activities in the context of sustainable production, as well as processing along the value chain and circular economy	2028

**Post-2020 Strategic Action Programme for the Conservation of Biodiversity and Sustainable Management
of Natural Resources in the Mediterranean Region (Post-2020 SAPBIO) (Decision IG.25/11)**

1. SPECIES AND HABITATS PLANS Update Mediterranean action plans for selected species and habitats listed under the SPA/BD Protocol.	2030
2. SPECIES RECOVERY Develop recovery plans and implement emergency actions for endangered and threatened species whose continued survival depends on such actions, including their habitats.	2030
3. MARITIME TRAFFIC Reduce the impact of maritime traffic (noise & collision) on sensitive marine species (Cetaceans, Turtles, others).	2030
4. NIS/IAS COMMITMENT Ratification of the International Convention for the Control and Management of Ballast Water and Sediments from Ships (BWM Convention), and adoption of the Regional strategy addressing ship's ballast water management and invasive species (2022-2027).	2030
5. NIS/IAS CAPACITY Strengthen the capacity of the Mediterranean countries to deal with alien marine species.	2030
6. NIS/IAS CONTROL Take the necessary field actions to mitigate the impact from NIS/IAS.	2030
7. LITTER Prevent leakage and remove marine litter to mitigate its impact on the ecosystem.	2030
8. EIA/SEA Implement environmental assessments, considering cumulative impacts on the coastal zones and their carrying capacity.	2030
9. WIND ENERGY Advocate that wind farms, are regulated in MCPAs, and cannot be developed elsewhere before their effects on the marine environment, biodiversity and human activities have been sufficiently researched, the risks are understood and alternatives assessed.	2030
10. MINERALS In line with the precautionary principle, the exploitation of minerals should not be authorized until the effect on the marine environment, biodiversity and related human activities have been sufficiently researched and the risks are understood, and alternatives assessed.	2030

11. SPATIAL PLANNING Support countries for the development of systematic conservation planning taking into account ICZM, land use/ marine use planning and management aspects in the context of MSP.	2030
12. RESTORATION Support restoration of ecosystems providing key services, those degraded and expected to become increasingly critical in a changing climate, such as wetlands and shallow seashore habitats among others.	2030
13. CLIMATE CHANGE Increase climate change impacts monitoring and contributions to mitigation and adaptation, particularly to warming, acidification, and to disaster risk reduction, through nature-based solutions and ecosystem-based approaches.	2030
14. GOOD ENVIRONMENTAL STATUS Promote actions, including scientific research, with the view of achieving GES for all biodiversity-related ecological objectives within the Ecosystem Approach EcAp/ IMAP.	2030
15. MCPAs and OECMs Assist countries in the implementation of the Post-2020 Regional Strategy for MCPAs and OECMs.	2030
16. BIODIVERSITY PLATFORM Establish an open access Mediterranean Biodiversity Platform.	2027
17. INVERTEBRATES Survey distribution and abundance, and assess status and main anthropogenic pressures, over priority invertebrate species with focus on <i>C. rubrum</i> , <i>P. nobilis</i> , and vermetid platforms.	2030
18. VERTEBRATES Establish the distribution, status, and the main anthropogenic pressures of species listed under Annex II to the SPA/ BD Protocol.	2030
19. HABITATS In coastal and offshore waters, inventory and cartography key Mediterranean habitats, and assess their status and main anthropogenic pressures.	2030
20. NIS/IAS Database Develop the shared georeferenced database (MAMIAS), user-friendly platform, to continuously monitor the status and pathways of non-indigenous species and support early warning.	2030
21. OVERFISHING and IUU Implement science-based management plans to effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing, including phasing out harmful fisheries subsidies which contribute to overcapacity and overfishing.	2030
22. BY-CATCH Develop a national mechanism and implement agreed and scientifically tested by-catch mitigation measures, to eliminate all intentional or accidental killing of threatened or endangered species and/or in bad conservation status.	2030
23. SMALL SCALE FISHERIES Promote the FAO Voluntary Guidelines for Securing Small Scale Fisheries (VGSSF) and co-management practices in professional small-scale fisheries, advised by traditional ecological knowledge and the best available science.	2030
24. AQUACULTURE Support developing the Post-2020 GFCM Aquaculture and Fisheries strategy - transforming the aquaculture industry through science-based solutions and marine spatial planning (MSP) tools.	2030
25. TOURISM Develop a framework of specific indicators for assessing the impact of marine and coastal tourism on destinations and for promoting ecotourism.	2030
26. INTEGRATING BIODIVERSITY Integrate biodiversity values into national and local development planning processes, into the strategies and planning processes of marine-related economic sectors, into national accounting as appropriate, reporting systems, and into the assessment of environmental impacts.	2030
27. STREAMLINE Post-2020 SAPBIO Streamline the Post- 2020 SAPBIO and Regional strategies and action plans, developed in the framework of the SPA/BD Protocol, into national strategies, action plans and legal frameworks.	2030
28. POLITICAL WILL AND COORDINATION Ensure political will and recognition at the highest levels of Government or State, to develop appropriate governance schemes, in particular cross-sectorial and multi-level institutional coordination.	2030
29. STAKEHOLDER PARTICIPATION Facilitate stakeholder engagement to address conflict between users, build capacity to contribute to the SAPBIO enforcement, particularly in MPA planning and management, through proper participation of all stakeholders in a transparent decision-making process.	2030

30. TOP-DOWN AND BOTTOM-UP SCALING OF INTERNATIONAL COMMITMENTS Scale down international commitments into national plans and to local level, streamlining the approach, targets and actions of the Post-2020 into national strategies and into local planning processes, while facilitating the bottom-up feeding of local proposals into future planning processes at the national and Mediterranean levels.	2030
31. COMPLIANCE AND ENFORCEMENT Enable the compliance of the provisions of the SPA/BD and the ICZM Protocols and related Action Plans at national level by strengthening capacities and cooperation between judiciary and administrative bodies.	2030
32. IMAP REFINEMENT Identification of the gaps that hinder the good environmental status evaluation, and in case needed, support countries to fill them out.	2030
33. IMAP IMPLEMENTATION Update national monitoring programmes in light of the new elements of IMAP and achieve regular reporting.	2030
34. Post- 2020 SAPBIO MONITORING Allow the Contracting Parties to periodically review and report, harmonized with IMAP and UNEP/MAP monitoring frameworks, on the status of implementation of the Post-2020 SAPBIO.	2030
35. SUPPORT TO RUN THE SAPBIO Provide sufficient human and financial resources to the MAP system in order to efficiently run the implementation, follow-up and assessment mechanisms for the Post-2020 SAPBIO.	2030
36. CAPACITY BUILDING FOR THE Post-2020 SAPBIO AT NATIONAL LEVEL Enhance the national capacities to implement the Post- 2020 SAPBIO, to manage MPAs and vulnerable marine and coastal habitats and species within and across national jurisdictions, with particular attention to less developed countries, and towards reducing the gender and the digital divide.	2030
37. NETWORKING Support existing regional, subregional and/or transboundary networks, or develop new ones as needed, to enhance capacities, knowledge, experience and opportunity sharing, inter alia, on topics as NIS/IAS, migratory species, MPA management, habitat restoration, reduced by-catch, harmonized monitoring, compliance with law and regulations, and other subjects relevant to the Post- 2020 SAPBIO.	2030
38. AWARENESS Increase awareness, understanding and appreciating of the values and threats to the marine environment, stimulating improved behaviour, and of the responses and good practices, by targeting decision-makers and the general public, through reinforced and renewed mechanisms, including mass communications.	2030
39. OUTREACH AND EDUCATION Promote the integration of marine biodiversity and ecosystems conservation concerns into school, higher education, professional training, and citizen science, so that best practices and innovative technologies to protect marine and coastal ecosystems are more accessible and replicable.	2030
40. EMPLOYMENT Adequately increase the employment, notably public employment in direct relation to marine biodiversity conservation (and eventually include redirecting existing one) as basic component for future blue economy wise development.	2030
41. SUSTAINABLE FUNDING Develop sustainable funding strategies with, as appropriate, innovative approaches to mobilize alternative financial sources, covering fiscal incomes that could be redistributed, and relevant actions to fund, including The MedFund and other types of national or local financing mechanisms.	2030
42. COOPERATION Increase cooperation both north/ south, south /south, and between governmental and non-governmental actors at different levels, to support the Post-2020 SAPBIO, particularly in the less developed countries.	2030

Appendix 4: Products and Interaction between EcAp Governance Bodies

CORMONs	Component/ Thematic Focal Points (FP)	EcAp Coordination Group (CG)	MAP Focal Points (FP) / COP
1. Monitoring guidelines/ protocols			
Products of a complex scientific and technical nature that may have financial implications for implementation of IMAP.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in the programme of Work (POW).	Coordinating Unit (CU) reports to EcAp CG on progress based on reports of MAP Components.	CU reports on progress and related activities of POW and Budget.
2. IMAP indicator guidance factsheets			
Products of a complex scientific and technical nature that may have policy and financial implications.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW. Recommended by CORMONs for no objection procedure.	CU reports to EcAp CG on progress based on reports of MAP Components. Based on current practice, endorsement by EcAp CG.	Approval of the respective provisions in the POW & budget, as appropriate.
3. Data dictionaries and data standards (DDs and DSs)			
Products of a technical nature.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW. Recommended by CORMONs for no objection for their submission to EcAp CG meeting and approval of the related provisions in the POW.	CU reports to EcAp CG on progress based on reports of MAP Components. Based on current practice, endorsement by EcAp CG, for MAP FP.	Approval of the respective provisions in the POW & budget, as appropriate.
4. Assessment criteria			
Products of a complex scientific and technical nature that may have policy implications, including allocation of financial resources for implementation of IMAP.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW. Review and endorsement for submission to EcAp CG meeting.	CU reports to EcAp CG on progress based on reports of MAP Components. Review and endorsement for submission to MAP FP.	Review and approval for submission to COP. COP Decision

5. Assessment methods & products, QSR structure, contents & conclusions

Scientific products with recommendations for COP consideration.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW. No objection from the scientific point of view; endorsement of recommendations. Recommendation for transmission to EcAp CG meeting.	CU reports to EcAp CG on progress based on reports of MAP Components. Endorsement of key findings and recommendations for submission to MAP Focal Points.	General review of main findings and recommendations and approval for submission to COP. In depth review of the related draft Decision body for submission to the COP. COP Decision.
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6. Thematic assessments

Thematic assessments prepared and approved.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW. Overall discussion and feedback on assessment recommendations. Endorsement for publication.	CU report on the progress; review of recommendations as appropriate. Endorsement of key findings and recommendations for submission to MAP Focal Points as appropriate.	Review of potential activities included in the POW. Review and endorse as appropriate of the key findings and recommendations.
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7. IMAP development and update

Scientific and policy products.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW. Review and approval for transmission to EcAp CG meeting.	CU reports to EcAp CG on progress based on reports of MAP Components Review and endorsement for submission to MAP FP	Responsible for approving all updates of IMAP implementation and approving the financial resources to address the needs as proposed by the respective CORMON and Component FPs. Review and approval for submission to COP, COP Decision
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8. Implementation of National IMAPs			
National IMAPs are of a technical nature with the implications for financial and policy aspects. The respective CORMON should be responsible for providing the recommendations in relation to: (i) the effectiveness of implementation of the National IMAPs related to the relevant IMAP Cluster; (ii) the gaps identified in the process of the National IMAPs implementation; (iii) the needs to be addressed, including technical, human resources, governance and financial aspects; (iv) harmonization of National IMAPs implementation; and (v) mechanisms/sources/means that could provide solutions and be used to improve implementation of National IMAPs.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW. Report on the progress, POW provisions as appropriate.	CU reports to EcAp CG on progress based on reports of MAP Components.	CU reports on progress and related activities of POW and Budget as appropriate.
9. Proficiency Testing			
Proficiency Testing (PT) is of a technical nature, based on the complex scientifically related procedures; however, with certain implications for policy decision-makers.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW Review of the outcome of Proficiency testing and delivery of recommendations to Focal Points; consideration of their outcome in the design of the POW as appropriate.	CU reports to EcAp CG on progress based on reports of MAP Components.	CU reports on progress and related activities of POW and Budget as appropriate.
10. Capacity Building Activities			
Products of a technical character.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities by CORMONs for their inclusion in POW.	CU Report on the progress.	CU reports on progress and related activities of POW and Budget.
11. Data management/QA/QC			
Products of a technical nature.	MAP Components report on progress to their Focal Points. Focal Points review proposed activities for their inclusion in POW as appropriate.	CU reports to EcAp CG on progress based on reports of MAP Components.	CU reports on progress and related activities of POW and Budget as appropriate.

COR ESA	Component/ Thematic Focal Points	EcAp Coordination Group	MAP Focal Points / COP
Review of relevant assessments/studies			
COR ESA is responsible for reviewing analyses and assessments carried out for EcAp that are of relevance for social and economic considerations. In particular:	Report on the progress	Report on the progress	Report on the progress
Socio-economic assessments.	MAP Components report on progress to their Focal Points Focal Points review proposed activities for their inclusion in POW.	CU reports to EcAp CG on progress based on reports of MAP Components. Endorsement of assessment by the EcAp CG. Possible recommendations to MAP FP meeting.	CU reports on progress and related activities of POW and Budget. Approval of assessment.
Socio-economic chapter of the Mediterranean Quality Status Report (QSR).	MAP Components report on progress to their Focal Points Focal Points review proposed activities for their inclusion in POW. No objection from the scientific point of view.	CU reports to EcAp CG on progress based on reports of MAP Components. Review and Endorsement of the chapter.	Overall endorsement of the chapter as part of the relevant 2023 MED QSR endorsement COP Decision.
Analyses of the socio-economic aspects of national programmes of measures.	MAP Components report on progress to their Focal Points Focal Points review proposed activities for their inclusion in POW.	CU reports to EcAp CG on progress based on reports of MAP Components. Endorsement of analyses, possible recommendations to MAP FP.	Report on the progress. Submission of COR ESA recommendations by the EcAp CG to MAP Focal Points/COP as relevant.
Provide guidelines to support Contracting Parties to undertake socio-economic analyses at the national level.	MAP Components report on progress to their Focal Points Focal Points review proposed activities for their inclusion in POW. Review and Endorsement and recommend submission to EcAp CG.	CU reports to EcAp CG on progress based on reports of MAP Components. Review and endorsement.	Report on the progress.
Methodological tools with regard to socio-economic assessments	MAP Components report on progress to their Focal Points Focal Points review proposed activities for their inclusion in POW. Review and Endorsement and recommend submission to EcAp CG	CU reports to EcAp CG on progress based on reports of MAP Components. Review and endorsement.	Report on the progress

Appendix 5: Terms of reference (TORs) for Ecosystem Approach Correspondence Groups on Monitoring (CORMONs), Economic and social analysis (COR ESA) and Online Working Groups (OWGs)

1. Ecosystem Approach Correspondence Groups on Monitoring (CORMONs)

1.1 Composition

1. The Correspondence Groups on monitoring (CORMONs) are established for each thematic cluster – Biodiversity and Fisheries; Pollution and Marine Litter; and Coast and Hydrography.
2. CORMONs are composed of national experts designated by the Contracting Parties possessing the necessary expertise and experience in line with the mandates of respective CORMON for IMAP implementation. They can be designated by the MAP Focal Points/EcAp CG members or by the thematic/MAP Components' Focal Points, preferably in consultation with each other.

1.2 Operation

3. The CORMONs' work is supported by the respective MAP Component: MED POL for Pollution and Marine Litter; PAP/RAC for Coast and Hydrography; and SPA/RAC for Biodiversity and Fisheries. Technical and scientifically related tasks may be supported by external experts, during preparation of the documents for consideration of respective CORMONs. The overall coordination of the work of CORMONs remains with the Coordinating Unit and is carried out in accordance with MAP Programme of Work (POW) priorities and implementation of the EcAp Roadmap and Policy.
4. CORMONs may meet physically or by teleconference, depending on the agenda, the volume of work and documents to be considered. Provisions for CORMON meetings numbers, main deliverables and modality are made in the MAP POW.

1.3 CORMON Mandate

5. CORMONs have the primary role to guide and deliver the implementation of technical and scientific aspects of IMAP and delivery of QSR with support from the Secretariat and MAP Components and foster regional and sub-regional collaboration and exchange of best practices and know-how with regards to monitoring and assessment of marine and coastal environment.
6. The operation of the CORMONs should recognize that the implementation of the ecosystem approach is comprehensive in terms of the multidisciplinary and scientific context of the documents that need to be discussed, and therefore iterative in terms of coordination of the results of work within the UNEP/MAP-Barcelona Convention system and at Contracting Party level.

7. Generally, CORMONs are assigned with the preparation and negotiation of the following main types of IMAP products:

- Monitoring guidelines and protocols on, sampling; sample processing analysis/determination; quality assurance (QA); and reporting
- IMAP indicator guidance factsheets
- Areas/scales of assessment, assessment criteria, and guidance for their application
- Assessment methodologies, assessment products and QSR (structure/contents, conclusions)
- Data standards (DS) and data dictionaries (DD)
- Data management QA and QC
- Updates of IMAP & progress reporting on IMAP implementation
- Implementation of national IMAPs
- Proficiency testing
- Capacity building activities
- IMAP related Project outcomes

8. CORMON IMAP products are of a technical and scientific nature, they may impose policy and financial impacts on IMAP implementation. A detailed elaboration of the different levels of responsibilities for consideration and approval of different types of IMAP products is provided in Annex I.

9. Informal Online Working Groups (OWG) may be established by CORMONs in order to provide specific scientific inputs: OWGs are composed of a restricted number of experts and scientists nominated by the Contracting Parties. In their delivery OWGs may be supported by experts mobilized by the Secretariat and MAP Components in accordance with provisions of the approved MAP POW and budget or related projects as appropriate. The tasks and outcome of the work of OWG are defined by the CORMONs. OWGs report to CORMONs. To this aim the chair of the OWG in consultation with the Secretariat/MAP Components presents the outcome of the OWG to CORMON.

10. The informal OWG do not replace the formal Correspondence Groups.

11. Every effort should be made to maintain geographical balance in the composition of the OWG and mobilize high level expertise.

12. No language interpretation is provided by the Secretariat at the OWG, nor are official meeting documents formally disseminated. Members of the OWG are strongly encouraged to provide scientific and technical inputs and support to the Secretariat/MAP Component work with regards to IMAP implementation and delivery of its products.

2. Correspondence Group on Economic and Social Analysis (COR ESA)

2.1 Composition

13. The Correspondence Group on Economic and Social Analysis (COR ESA) is composed of national experts designated by the Contracting Parties and invited experts and coordinated by Barcelona Convention/UNEP-MAP Coordinating Unit and Plan Bleu/RAC. The Group also includes representatives of the other UNEP/MAP Components as well as international experts selected by the Contracting Parties through Plan Bleu/RAC Focal Points and/or by the Secretariat for their experience in similar initiatives or for their scientific expertise.

2.2 Operation

14. The work of COR ESA is supported by Plan Bleu RAC under the overall coordination of the Coordinating Unit.

2.3 Mandate

15. The COR ESA is responsible for the following:

- Preparing and guiding the socio-economic assessments
- Preparing the socio-economic chapter of the Mediterranean Quality Status Report (QSR)
- Undertaking analyses of the socio-economic aspects of national programmes of measures
- Supporting Contracting Parties to undertake socio-economic analyses at the national level
- Developing methodological tools with regard to socio-economic assessments

3. Effective interaction among different MAP bodies

16. The level of interaction between the bodies of the EcAp governance structure and MAP decision making bodies i.e., MAP Components/Thematic Focal Points, MAP Focal Points and COP depends on the nature of the products as detailed in Annex 1, in line with their respective mandates. Annex also provides information on the type of documents to be reviewed by each body.

Annex II

Integrated Monitoring and Assessment Programme for the Mediterranean Sea and Coast and Related Assessment Criteria (IMAP) (Third Cycle).

1. Introduction

1. Monitoring and assessment, based on scientific knowledge, of the sea and coast is the indispensable basis for the management of human activities, in view of promoting sustainable use of the seas and coasts and conserving marine ecosystems and their sustainable development. 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 **first (2008 – 2015)** and second cycle (2016 – 2024) of the implementation of the Ecosystem Approach (EcAp) Process, and the third cycle (2026 – 2035) which is underway, in order to assess the status of the Mediterranean sea and coast, as a basis for further and/or strengthened measures.

Background:

2. IMAP builds on the monitoring and assessment related provisions of the Barcelona Convention and its Protocols, previous Decisions of the Contracting Parties related to monitoring and assessment, and a number of Decisions related to the preparation of the 2017 and 2023 Mediterranean Quality Status Reports and the implementation of EcAp Roadmap.

3. In addition, the development of IMAP has duly taken into account the implementation of the Contracting Parties' monitoring and assessment programmes, as well as practices of other Regional Sea Conventions and other Regional bodies.

Timeline:

4. Significant progress was made in achieving IMAP's objectives and targets during its second phase (2016-2021). This implies in practice that the existing national monitoring and assessment programmes were reviewed and revised as appropriate so that national implementation of IMAP and regional and sub-regional assessments can be fulfilled in an effective manner, including updated GES definitions and targets, further refinement and establishment of assessment criteria, development and implementation of the GES and alternative environmental assessment alongside the assessment scales, harmonization and standardization of monitoring practices, advancement of data management and data Quality Assurance and Quality Control (QA/QC).

5. Furthermore, the 2017 and 2023²³ Mediterranean Quality Status Reports (MED QSR) as well as the 2019 State of Environment and Development Report (SoED) were built based on the structure, objectives and data reported under IMAP. The validity of the IMAP should be reviewed once at the end of every EcAp cycle, and in addition it should be updated and revised as necessary on a mid-term basis, based on lessons learnt of the implementation of the IMAP and on new scientific and policy developments.

2. IMAP Common Principles and Structure

2.1 Overarching Principles²⁴ and the Overall IMAP Structure

6. The key elements addressed through IMAP, in line with Decision IG.22/7 of COP19, are the Common Indicators, monitoring and assessment methodologies for all IMAP clusters (i.e., Biodiversity and Non-Indigenous Species, Pollution and Marine Litter, Coast and Hydrography), as well as assessment criteria. On the other hand, the objectives, indicators, GES definitions and targets

²³ <https://medqsr2023.info-rac.org/>

²⁴ Clarification about the IMAP principles are provided in the Integrated Monitoring Guidance Document and respective Indicators' Guidance Factsheets.

are also part of the Ecosystem Approach (EcAp) Roadmap implementation.

7. The overarching principles guiding the development, implementation and revision of the IMAP include: (i) adequacy; (ii) coordination and coherence; (iii) data architecture and interoperability based on common parameters; (iv) concept of adaptive monitoring; (v) risk-based approach to monitoring and assessment; and (vi) the precautionary principle in addition to the overall aim of integration. In line with the above overarching principles, data and information is gathered through integrated monitoring activities on the national level and shared in a manner that creates a compatible, shared regional pool of data, usable by each Contracting Party.

8. The IMAP information system (Info System) ensures the establishment of a regional data repository which will allow the production of common indicator assessment reports in an integrated and harmonized manner, following the monitoring procedures and standards and data provided, thus ensuring comparability across the Mediterranean region.

9. In line with the above, integration is achieved through IMAP implementation at regional and national levels, through the standardized and harmonized monitoring systems, following common principles undertaken in a coordinated manner, with the overall aim to assess the Good Environmental Status (GES) of the marine and coastal environment.

2.2 IMAP Monitoring

10. The IMAP monitoring requirements focus on, based on agreed Common Indicators and related parameters, the prevailing anthropogenic pressures and their impacts, and the progress towards the GES (Ecological Objectives and Targets). The monitoring is carried out in such a way that an assessment with adequate confidence and precision is achieved.

11. IMAP sets out the basis on how the Contracting Parties should design and carry out their national IMAP-based integrated monitoring programmes and work together in the framework of the UNEP/MAP Barcelona Convention to produce quality-assured data of optimal quality across all common indicator to ensure reliable and up-to-date regional assessments on the status of the Mediterranean Sea and Coast.

12. Since 2016-2017, the Contracting Parties updated their existing monitoring programmes in order to enhance monitoring and assessment in line with the Indicator Guidance Factsheets developed under IMAP. It has to be noted that the Mediterranean has gone through a number of important advancement pertinent to IMAP implementation:

- Development of IMAP-based national monitoring programmes;
- Data reporting and submission through the IMAP Info System based on their existing national monitoring programmes;
- Establishment of region and four sub-regions wide assessment criteria;
- Setting a basis for the aggregation and integration of assessments across specific IMAP Common Indicators and Ecological Objectives, towards an integrated Good Environmental Status (GES);
- Establishment of the initial the assessment scales within the IMAP nested framework based on monitoring scales defined in national IMAP Pollution monitoring programme;
- Development and implementation of GES and alternative environmental assessment methodologies, alongside the assessment scales, assessment criteria, and the DPSIR approach;
- Development and implementation of standardized and harmonized monitoring procedures and standards;
- The 2017 and 2023 Mediterranean Quality Status Reports (MED QSRs).

13. During national implementation, the Contracting Parties have been encouraged to coordinate within and between each other in order to use resources in an efficient way. Shared monitoring stations and activities, information, and data could be steps towards this direction.

14. The IMAP assessment products, produced by the UNEP/MAP Secretariat, such as the MED QSRs and the 2019 State of Environment and Development Report in the Mediterranean (SoED), should be mainly based on the common indicators and monitoring data provided and verified by the Contracting Parties, and/or complemented by satellite-derived data and reliable scientific literature as available for individual CP/groups or CPs.

15. In areas of scientific and/or data gaps, the assessment products can also build on relevant scientific projects, pilot outcomes, and comparable data of other regional organizations and in case these are not available, on scientific literature. In addition, they will analyze trends, drivers and will build on available socio-economic data. Without existing data or scientific work, expert consultation will be used to validate the final assessment.

16. The common indicator Guidance Factsheets provide information on the status of the environment and information needed to evaluate the severity of environmental problems and distance from GES targets of the ecological objectives.

17. The Indicator Guidance Factsheets are linked to specific indicators and together they set methodologies and statistical elaborations to assess whether the GES targets are met or not. Following the EO level assessment, the integrated assessment should take place on the state of the Mediterranean Sea and Coast.

18. The recent 2023 Mediterranean Quality Status Report was based on and structured along the respective Ecological Objectives and Common Indicators, by building on the guidance set in the established and approved common indicator Guidance Factsheets.

19. During the development of the above, an integrated approach for assessing GES was used, considering the Integrated Monitoring and Assessment Guidance Factsheets, describing state-based common indicators and relating them to the pressure-based indicators.

20. Some studies have been undertaken by UNEP/MAP to provide with practical solutions to structure, strengthen and sustain a "science-policy-interface" to support IMAP implementation, both for monitoring and assessment. These solutions touch upon evidence (science), outreach (policy) & engagement (human and financial means) and are valid for the 3 clusters of IMAP (Biodiversity and Non-Indigenous-Species, Pollution – Marine Litter, Coast and Hydrography).

21. As part of the EcAp governance structure, COR ESA meetings allow to work on the socio-economic characteristics of the Mediterranean Sea with information on demography, economy & employment and qualitative description of the links between human activities and the coastal and marine environment. To deeply assess the level of environmental and social sustainability of human activities that impact the coastal and marine environment, UNEP/MAP is measuring the sustainable blue economy based on a sustainability framework and associated core set of indicators.

2.3 UNEP/MAP Strategy Towards an Integrated Data and Information System

22. Assessments arising from monitoring data are critically dependent upon practical mechanisms for handling data from different activities that ensure that documents, data, and products are managed consistently and are easily available to users. This supports integrated assessments, for example from integrated biological and chemical programmes, or linking the observed changes in spatial distribution and temporal trends in substances or their effects to inputs into the UNEP/MAP Barcelona Convention

maritime area.

23. Data storage and handling processes are therefore central, and it is important that the role of the various components in this is clear and continuously developed and strengthened.

24. IMAP thus requires an updated and integrated data and information system for UNEP/MAP Barcelona Convention with clear set roles for data handling and assessment for the various components and with a user-friendly reporting platform for Contracting Parties ([IMAP Info System](#)), based on the following strategic points:

- The UNEP/MAP Barcelona Convention data and information are collected according to the official MAP data policy approved at COP22 ([Decision IG.25/10](#));
- The UNEP/MAP Barcelona Convention data and information system aims to support a reliable, quantitative assessment of the GES of the Mediterranean Sea and Coast;
- The UNEP/MAP Barcelona Convention data and information facilitate access and knowledge of the general public to environmental information.

25. Core elements of the UNEP/MAP Barcelona Convention integrated data and information system include:

- Data Standards (DSs) and Data Dictionaries (DDs) monitoring reporting formats based on IMAP Common Indicator factsheets and tools for data exchange;
- Relevant quality control for both data reporting by national IMAP users and data validation procedures within the IMAP Info System, as well as ensure assessment products are available in an integrated manner, on a common platform.

26. Data and information available using harmonized standards and practices, following the UNEP access-to-information policy (UNEP/EA. 1/INF/23).

27. IMAP Info System, developed during the second IMAP cycle, is fully operational and allows Contracting Parties to report data for 18 IMAP Common Indicators (i.e. 1, 2, 3, 4, 5, 6, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24) through 30 Information Standards.

28. IMAP Info System is accessible to the general public (<http://imapinfosystem.info-rac.org/app/#/>) and login is required only to access reserved sections. An IMAP Info System Technical Guide is available to help users in browsing the web site.

29. The structure of IMAP Info System is user-friendly and allows easy navigation with three main sections:

- Reporting (Standards, Conformity check, Upload);
- Explore (Published data, Geographical data, Dashboard, Utility tools);
- Info (Documents, Guidelines and tutorials, Info and contact).

2.4 Cooperation with Relevant Regional Bodies in the Context of IMAP Implementation

30. The current IMAP covers with agreed common indicators the Ecological Objectives (EOs) related to Biodiversity (EO1), Non-Indigenous Species (EO2), Harvest of Commercially Exploited Fish and Shellfish (EO3), Marine Food Webs (EO4), Eutrophication (EO5), Sea-Floor Integrity (EO6), Hydrographic alterations (EO7), Coastal Ecosystems and Landscapes (EO8), Contaminants (EO9), Marine Litter (EO10), and Energy including Underwater Noise (EO11).

31. In addition, common indicators are included under EO11 (Energy including Underwater Noise), further to new scientific knowledge availability and projects' results supporting monitoring activities.

32. While some of the elements of fisheries (EO3) and marine food webs (EO4) are partly covered by the monitoring and assessment of EO1 and EO2 the Contracting Parties have agreed on the GFCM developed list of common indicators. In this regard, the monitoring and assessment specifics of EO3 are being developed by the GFCM, in close cooperation with UNEP/MAP.

33. In light of the above, UNEP/MAP has strengthened its cooperation with the relevant regional bodies, especially in relation to:

- EO1: with the General Fisheries Commission for the Mediterranean (GFCM) for commercial species of fish and shellfish, the International Union for Conservation of Nature (IUCN) and the Secretariat of the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area (ACCOBAMS), Noting that the ACCOBAMS Survey Initiative II will provide important inputs, including: monitoring cetaceans and other marine species by tracking the distribution, abundance, and trends of cetaceans, sea turtles, seabirds, elasmobranchs, and pelagic fish; assessing human pressures such as pollution, underwater noise, fisheries interactions, ship strikes, and other anthropogenic threats; as well as enabling the early detection of environmental changes, including population declines, shifts in species distribution, and emerging threats related to climate change.
- EO3: with the GFCM, noting that EO3 Common Indicators are based on GFCM methodologies and assessed through its biennial SoMFi reports, which inform IMAP integrated assessments.
- EO5: with EMODnet, COPERNICUS and HELCOM to utilize alternative data sources, aiming to compensate for gaps in the *in-situ* data reporting within the IMAP Info System, and to support the development of assessment methodologies;
- EO9: with EMODNET, EEA, and MSFD Technical Bodies to enhance the use of alternative data sources to compensate for gaps in the *in-situ* data reporting within the IMAP Info System, and to support the development of robust assessment methodologies;
- EO10: with ACCOBAMS, in particular for floating marine litter (i.e., links with ACCOBAMS Survey Initiative (ASI)²⁵);
- EO11: with ACCOBAMS, noting that new scientific knowledge and project results supporting monitoring activities have led to the establishment of threshold values aimed at maintaining Good Environmental Status (GES) for both short-term and long-term exposure to impulsive noise events, and development of Initial GES Assessment Methodologies for impulsive and continuous noise. These advancements laid the foundation for elevating noise candidate indicators to full common indicators.

²⁵ <https://accobams.org/main-activities/accobams-survey-initiative-2/accobams-survey-initiative/>

34. In addition, cooperation with other regional and international bodies will be key for the successful implementation of IMAP, to ensure that no double obligation is created for those Contracting Parties, which are Parties to various Regional Seas Conventions and/or members of the European Union and undertake monitoring activities under other specific frames.

35. Cooperation with other regional and international bodies can also strengthen the cost-efficiency and scientific adequacy of IMAP. Exchange of best practices and information is encouraged during the IMAP implementation, both in between Contracting Parties participating in various monitoring programmes and in between UNEP/MAP and other relevant regional, international bodies.

3.Key Elements of IMAP

3.1 Common Indicators

36. The common indicators are the backbone of IMAP.

37. In the context of the Barcelona Convention, a common indicator is an indicator that summarizes data into a simple, standardized, and communicable figure and is ideally applicable in the whole Mediterranean basin, or at least on the level of sub-regions, and is monitored by all Contracting Parties. A common indicator is able to give an indication of the degree of threat or change in the marine ecosystem and can deliver valuable information to decision makers.

38. Candidate indicators are indicators which still have many outstanding issues regarding their monitoring and assessment and therefore are recommended to be monitored in the initial phase of IMAP on a pilot and voluntary basis.

39. The Common and candidate indicators currently agreed, which are at the core of IMAP, include:

- 1) Habitat distributional range (EO1) to also consider habitat extent as a relevant attribute;
- 2) Condition of the habitat's typical species and communities (EO1 related to benthic and pelagic habitats);
- 3) Species distributional range (EO1 related to marine mammals, seabirds, marine reptiles);
- 4) Population abundance of selected species (EO1, related to marine mammals, seabirds, marine reptiles);
- 5) Population demographic characteristics (EO1, e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates related to marine mammals, seabirds, marine reptiles);
- 6) Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species);
- 7) Spawning stock Biomass (EO3);
- 8) Total landings (EO3);
- 9) Fishing Mortality (EO3);
- 10) Fishing effort (EO3);
- 11) Catch per unit of effort (CPUE) or Landing per unit of effort (LPUE) as a proxy (EO3);
- 12) Bycatch of vulnerable and non-target species (EO1 and EO3)
- 13) Concentration of key nutrients in water column (EO5);
- 14) Chlorophyll-a concentration in water column (EO5);
- 15) Location and extent of the habitats potentially impacted by hydrographic alterations

- (EO7)²⁶;
- 16) Length of coastline subject to physical disturbance due to the influence of human²⁷-made structures (EO8);
 - 17) Concentration of key harmful contaminants measured in the relevant matrix (EO9, related to biota, sediment, seawater);
 - 18) Level of pollution effects of key contaminants where a cause-and-effect relationship has been established (EO9);
 - 19) Occurrence, origin (where possible), and extent of acute pollution events (e.g. slicks from oil, oil products and hazardous substances) and their impact on biota affected by this pollution (EO9);
 - 20) Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood (EO9);
 - 21) Percentage of intestinal enterococci concentration measurements within established standards (EO9);
 - 22) Trends in the amount of litter washed ashore and/or deposited on coastlines (including analysis of its composition, spatial distribution and, where possible, source.) (EO10);
 - 23) Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10);
 - 24) Trends in the amount of litter ingested by marine organisms and in the number of individuals entangled in marine litter (EO10);
 - 25) Land cover change (EO8)²⁸;
 - 26) Proportion of days and geographical distribution where loud, low, and mid-frequency impulsive sounds exceed levels that are likely to entail significant impact on marine animals (EO11,);
 - 27) Levels of continuous low frequency sounds with the use of models as appropriate (EO11,);
 - 28) Trends in the amount of litter coming from riverine sources (EO10);
 - 29) Biomass or abundance of species/genera/taxa or trophic groups (EO4, **Candidate Indicator**);
 - 30) Average of Mean Trophic Level of species/genera/taxa or trophic groups from biomass and/or catches (EO4, **Candidate Indicator**);
 - 31) Biodiversity indices (EO4, **Candidate Indicator**);
 - 32) Pelagic/Demersal ratio (EO4, **Candidate Indicator**);
 - 33) NIS/Demersal ratio (EO4, **Candidate Indicator**);
 - 34) Zooplankton/ phytoplankton ratio (EO4, **Candidate Indicator**)²⁹;
 - 35) Size distribution of trophic groups (EO4, **Candidate Indicator**);
 - 36) Production of Megafauna (*Megafauna variables from EO1) (EO4, **Candidate Indicator**);
 - 37) Extent of physical loss of natural habitat (EO6);
 - 38) Extent of adverse effects on benthic habitat (EO6);
 - 39) **Large scale changes in circulation patterns, temperature, pH, and salinity distribution**

²⁶ Several CORMON meetings agreed to simplify the original Guidance Factsheet in order to allow for monitoring of this indicator due to its complexity, requirements for historic data, significant human and financial resources required and alike. Some simplification has been already proposed however further steps are needed and agreed (for the last time at CORMON meeting in Marseille 28-29 March 2023). Title to be changed accordingly.

²⁷ Change of the term “man-made” to “human-made” in the title of the indicator due to gender equality reasons, further to the proposal that has been requested by the EU and several CPs.

²⁸ The CORMON Coast and Hydrography (Marseille, 28-29 March 2023) agreed to put this indicator to the list of Common indicators. The title should be “Land cover change”. Testing has been done with several projects (SIDA, EcAp MED II and III, GEF MedProgramme) and results for the Adriatic sub-region were included in the 2023 MED QSR, training sessions have been completed or are in progress for all GEF MedProgramme countries. The COP23 Decision on 2023 QSR proposes some technical elements for the Guiding Factsheet that have been inserted to the method.

²⁹ **Data derived from EO1 (Pelagic Habitats Indicators)**

(EO7, Candidate Indicator);

40) Long term changes in sea level (EO7, Candidate Indicator);

41) Area of restored degraded coastal wetlands (EO8, Candidate Indicator)

42) Extent and frequency of coastal flooding (EO8, Candidate Indicator)

43) Changes in burnt forest areas (EO8, Candidate Indicator)

40. During the implementation of IMAP since 2016, the CORMONs have played an instrumental role in further developing the respective common and candidate indicators towards common indicators as well as to further refine their specifics, including a number of technical elements, for the agreed common indicators, in particular on the assessment scales, in light of the ongoing implementation experience of IMAP.

Note on Geographic Reporting Scales:

41. A scale of reporting units' has been defined in the framework of IMAP taking into account both ecological considerations and management purposes, following a nested approach.

42. The nested approach aims to accommodate the needs of the above by taking into account 4 main assessment scales:

- a) Whole region (i.e. Mediterranean Sea and Coastal Regions as defined by the Convention and its Protocols);
- b) Mediterranean sub-regions the Western Mediterranean Sea, the Adriatic Sea, the Central Mediterranean, and the Aegean and Levantine Seas in the Eastern Mediterranean part, as presented in the Initial Assessment of the Mediterranean Sea (UNEP(DEPI)/MED IG.20/Inf.8), 2017 and 2023 MED QSRs;
- c) Coastal waters and offshore marine waters; and
- d) Subdivisions of coastal waters provided by Contracting Parties.

43. The work was undertaken by further developing the assessment scales of the nested approach.

3.2 Monitoring and Assessment of Biodiversity and Non-Indigenous Species related Common Indicators

Biodiversity (EO1):

44. Biological diversity is the “variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”.

45. The common indicators to be monitored and assessed in relation to biodiversity are as following:

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|---------------------|---|
| Common Indicator 1: | Habitat distributional range (EO1) to also consider habitat extent as a relevant attribute; |
| Common Indicator 2: | Condition of the habitat's typical species and communities (EO1); |
| Common Indicator 3: | Species distributional range (EO1 related to marine mammals, seabirds, marine reptiles); |

- Common Indicator 4: Population abundance of selected species (EO1, related to marine mammals, seabirds, marine reptiles);
- Common indicator 5: Population demographic characteristics (EO1, e.g. body size or age class structure, sex ratio, fecundity rates, survival/mortality rates related to marine mammals, seabirds, marine reptiles).

46. Climate change represents a major long-term threat to Mediterranean biodiversity. To address this, future work should clarify the Guidance Factsheets and GES definitions, and integrate climate change impacts into indicators and methodologies, including the determination of baselines and thresholds. This may include not only the determination of baselines and thresholds but also consideration of shifting baselines and the adoption of a dynamic approach to biological community assessments.

47. As it is not possible or even necessary to monitor all attributes and components of biological diversity throughout the region, IMAP monitoring is focusing, in line with the risk-based approach, on the most representative sites and species, which can showcase the relationship between environmental pressures and their main impacts on the marine environment. In light of the above, an updated reference list of species and habitats with a good representativity of Mediterranean marine biodiversity to be monitored is presented in Annex I, noting that those Contracting Parties who have the necessary means and are willing to do so can go beyond the monitoring requirements of this reference list.

48. The Contracting Parties while updating their national monitoring programmes, for the new six-year cycle, need to take into consideration the results of the MED QSR and to include at least the monitoring of the updated reference list species and habitats with, at least, two monitoring areas, one in a low-pressure area (e.g. marine protected area/ Specially Protected Area of Mediterranean Importance (SPAMI) and one in a high-pressure area from human activity).

49. To achieve a comprehensive assessment of the state of the Mediterranean Sea, it is essential to expand the monitoring protocols for EO1 CI1 and CI2, to include pelagic habitats. Currently, The Contracting Parties focus on Benthic habitats and specific types such as well illuminated infralittoral rock, algal-dominated infralittoral rock, *Posidonia oceanica* meadows, coralligenous, and circalittoral rhodolith beds provides valuable information about the benthic zone. However, to gain a full understanding of the ecosystem, it is crucial to also consider both benthic and pelagic zones, taking into account the anthropogenic pressures.

50. Two common indicators have been proposed for assessing the pelagic habitat of the Mediterranean Sea under the IMAP framework: CI1 and CI2. Contracting Parties are encouraged to use the agreed common reference list of pelagic habitat types, as well as operational objectives and indicators based on phytoplankton and zooplankton, to ensure coherent and coordinated monitoring across the region. The typology of pelagic habitats represents a general framework that can be adopted and modified by the Contracting Parties to integrate local ecosystems, features and dynamics.

51. Pelagic habitats are closely linked to several Ecological Objectives of the EcAp, particularly EO4 (Marine Food Webs) and EO5 (Eutrophication). Strengthening the connections between these objectives requires improved data collection and sharing, as well as enhanced data harmonization and interoperability.

52. For EO1 CI1 and CI2, given the importance and vulnerability of *Posidonia oceanica* meadows in the context of climate change, the Contracting Parties shall make every effort to monitor the selected parameters of *Posidonia* meadow to ensure better protection of this essential habitat, which fulfills a functional role for many species, limits coastal erosion, and contributes to climate

change mitigation. Additionally, parameters that could provide insights into their resilience to climate change impacts should also be studied and monitored.

53. The Mediterranean Sea harbours 11 cetaceans' species, which are subject to various human pressures, which reflect on their conservation status. The few species of cetaceans regularly present in the Mediterranean Sea should all be considered when updating the national monitoring programmes for the new six-year cycle. The Contracting Parties shall make every effort to identify a minimum of two species to be included in their national monitoring programme, based on the specificity of their marine environment and biodiversity, and taking into account that these species should belong to, at least, two different functional groups, where possible (Baleen whales / Deep-diving cetacean / other toothed species). As far as possible, the choice of monitored species should be coordinated at sub regional scale to ensure coherence with cetacean population distribution in the Mediterranean Sea, as proposed in the Monitoring and Assessment Scales, Assessment Criteria, Thresholds and Baseline Values for the IMAP Common Indicators 3, 4 and 5 related to marine mammals.

54. Seabirds *sensu lato* form a crucial component of the region's marine biodiversity and ecosystem, with many of the relevant taxa being endemic or near-endemic to the Mediterranean. A list of priority species, which includes 11 representative species from a range of functional groups that can showcase the relationship between environmental pressures and their main impacts on the marine environment, was selected from Annex II of the Barcelona Convention. This list will be utilized for the assessment of the three relevant IMAP Common Indicators (CIs) related to seabirds according to the Monitoring and Assessment Scales, Assessment Criteria, Thresholds, and Baseline Values for the IMAP Common Indicators 3, 4, and 5 related to seabirds. As far as possible, the Contracting Parties should implement coordinated monitoring efforts within subdivisions or subregions to improve the representativeness of monitoring samples.

55. Monitoring and Assessment Scales, Assessment Criteria, Thresholds, and Baseline Values are available to the Contracting Parties for Common Indicators 1,2, related to three habitat types (Posidonia, coralligenous, and rhodoliths), as well as for Indicators 3,4 and 5 for related to seabirds, Marine Mammals, Marine Turtles (Annex I to the present document). The Contracting Parties are encouraged to use those elements while developing national assessments

56. The methodologies, quality control and quality assurance measures are available for Contracting Parties and have been considered in their IMAP-based national monitoring programmes, in line with the Integrated Monitoring and Assessment Guidance as well as the numerous technical guidelines prepared by SPA/RAC.

57. Regarding the assessment of biodiversity, it has to be noted that the quantitative definition of GES is difficult, considering the variety of assessment elements and the effects of climate change. The conceptual approach for a quantitative GES setting can be framed in a way that the resilience of the ecosystem is suited to accommodate the quantified biodiversity, or, in other words, it will be accounted in the determination of the GES boundaries as the "acceptable deviation from a reference state which reflects conditions largely free from anthropogenic pressures.

58. The scale of monitoring is of specific importance for biodiversity, due to the nature of the biodiversity related common indicators.

59. Furthermore, Data Standards (DSs) and Data Dictionaries (DDs) are available for the OE1 common Indicators (i.e., coralligenous, Rhodolith and *Posidonia oceanica* meadow's habitat, Marine Mammals, Marine Turtles and Marine Birds).

Non-Indigenous Species (EO2):

60. Non-indigenous species (NIS; synonyms: alien, exotic, non-native, allochthonous) are species, subspecies, or lower taxa introduced outside of their natural range (past or present) and outside of their natural dispersal potential.

61. Invasive alien species (IAS) are a subset of established NIS which have spread, are spreading, or have demonstrated their potential to spread elsewhere, and which have an effect on biological diversity and ecosystem functioning (by competing with and on some occasions replacing native species), socio-economic values, and/or human health in invaded regions.

62. The common indicator in relation to NIS is:

Common Indicator 6: Trends in abundance, temporal occurrence, and spatial distribution of non-indigenous species, particularly invasive, non-indigenous species, notably in risk areas (EO2, in relation to the main vectors and pathways of spreading of such species in the water column and seabed, as appropriate);

63. Non-indigenous species monitoring in the Mediterranean is a trend monitoring, where it is key to establish reliable, standardized monitoring and long-term data-sets as a first step of monitoring.

64. In addition, monitoring of non-indigenous species (NIS), following the risk-based approach, needs to be focused on the invasive alien species (IAS) in IAS introduction “hot spots” (e.g. ports and their surrounding areas, docks, marinas, aquaculture installations, heated power plant effluents sites, offshore structures). In addition, areas of special interest such as marine protected areas or lagoons may be selected on a case-by-case basis, as appropriate, depending on the proximity to alien species introduction hot spots.

65. With the application of the risk-based approach as stated above, it is possible to obtain an overview of the non-indigenous species present at a large spatial scope while only monitoring a relatively small number of locations.

66. Based on existing regional databases, such as the Marine Mediterranean Invasive Alien Species database, (MAMIAS), the “Andromeda” invasive species database for the Mediterranean and Black Sea, and the European Alien Species Information Network (EASIN), as well as subregional and regional Non-Indigenous Species (NIS) inventories, each Contracting Party should update the list of IAS to be monitored in its national monitoring programme at the start of each new phase of IMAP and start collecting data regarding these species.

67. Key next steps for GES assessment of NIS involve elaborating on CI6 aspects related to impacts by developing criteria and targets for vulnerable species and habitats. This should be coordinated with EO1 CI1 and CI2 and EO6 on sea-floor integrity. It is also crucial to assess the impact of Invasive Alien Species on habitat condition within EO1-CI2 and to include NIS impacts on seabed habitats in EO6, which is currently missing from IMAP.

68. The methodologies and quality control and quality assurance measures are available for Contracting Parties and have been considered in their IMAP-based national monitoring programmes, in line with the Integrated Monitoring and Assessment Guidance as well as the numerous technical guidelines prepared by SPA/RAC.

69. As the most effective monitoring method a Rapid Assessment Survey (RAS) will be carried out, at least yearly, by the Contracting Parties in hot-spot areas (e.g. ports and their surrounding areas, docks, marinas, aquaculture installations, heated power plant effluents sites, offshore structures). Contracting Parties with the necessary resources are encouraged to use Environmental DNA (eDNA) surveys.

70. In addition, UNEP/MAP will develop during the next phase of IMAP citizen survey guidance for NIS, to enable Contracting Parties to use this additional cost-efficient methodology, which also strengthens public awareness and participation.

71. Guidance on monitoring non-indigenous species, monitoring and assessment Scales, Assessment Criteria, Thresholds, and Baseline Values are available and wide agreed for the Mediterranean with regards to Common Indicators 6. The Contracting Parties are encouraged to use those elements while developing national assessments, following the assessment criteria set out in the Integrated Monitoring and Assessment Guidance.

Harvest of Commercially Exploited Fish and Shellfish (EO 3):

72. The GES for EO3 is “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”.

73. The current IMAP framework for EO3 is based on the set of Common Indicators and operational objectives developed by the General Fisheries Commission for the Mediterranean (GFCM) and adopted under the Ecosystem Approach (EcAp) process. No revisions to the operational objectives, Common Indicators, GES definitions, or proposed targets are introduced in this document. The elements presented here remain aligned with the guidance factsheets agreed upon at the 6th Meeting of the EcAp Coordination Group and continue to serve as the technical basis for implementation under IMAP.

74. The Common Indicators under EO3 are the following:

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| 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 (also relevant to EO1). |

75. The GES definitions and assessment criteria for CI7, CI8, and CI9 follow GFCM's stock units, geographical sub-areas, and regional stock assessment methodology as outlined in the Data Collection Reference Framework (DCRF). These indicators are monitored according to GFCM sub-regional and species-specific guidance and remain valid unless formally revised by GFCM. They are assessed through the GFCM regional stock assessment process, with overall status and trends reported biennially in the State of Mediterranean and Black Sea Fisheries (SoMFi) report.

76. The status of EO3 in the 2023 Mediterranean Quality Status Report (2023 MED QSR), is provided by GFCM based on the most recently published SoMFi.

77. CI10, CI11, and CI12 are pending further methodological updates to incorporate recent advances. Their use in regular monitoring may be considered when standardized methodologies are finalized by GFCM.

Marine Food Webs (EO4):

78. 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.

79. The following are the **Candidate** Common Indicators related to Marine Food Webs:

Candidate Common Indicator 29: Biomass or abundance of species/genera/taxa or trophic groups

Candidate Common Indicator 30: Average of Mean Trophic Level of species/genera/taxa or trophic groups from biomass and/or catches

Candidate Common Indicator 31: Biodiversity indices

Candidate Common Indicator 32: Pelagic/Demersal ratio

Candidate Common Indicator 33: NIS/Demersal ratio

Candidate Common Indicator 34: Zooplankton/phytoplankton ratio

Candidate Common Indicator 35: Size distribution of trophic groups

Candidate Common Indicator 36: Production of Megafauna

80. Given the complexity of monitoring Ecological Objective 4 (EO4), it is recommended to adopt a step-by-step approach, starting with simple methods and indicators and gradually moving to more advanced ones. Key variables such as biomass, abundance, diet, and trophic levels of marine species, as well as commercial catches and fishing activities, can be useful starting points for estimating common indicators. These variables are generally available to all Contracting Parties through open-access platforms such as GFCM-DCRF, FishBase, FishStatJ, and Global Fishing Watch.

81. The assessment of EO4 is particularly challenging due to the complexity of food webs and the interactivity of the multiple pressures on ecosystems. In addition, there are still significant gaps in data availability, which makes it difficult to develop reliable indicators and link indicator changes to pressures, and consequently to set thresholds. Addressing these gaps is a prerequisite for setting common regional targets and ensuring harmonized monitoring across the Mediterranean.

82. The next phase should concentrate on establishing a robust knowledge base through coordinated data collection and the refinement of indicators relevant to food web dynamics. Once this foundation is established, it will be possible to define threshold values and align monitoring methodologies, in accordance with the criteria outlined in the Integrated Monitoring and Assessment Guidance.

Sea-Floor Integrity EO 6:

83. Sea-floor integrity is maintained, especially in priority benthic habitats.

84. The Sea-floor integrity Common Indicators are the following:

Common Indicator 37: Extent of physical loss of natural habitat

Common Indicator 38: Extent of adverse effects on benthic habitat (this may comprise several indicators which address specific pressures or particular aspects of habitat condition)

85. Contracting Parties shall implement EO 6 in close association with other state-based EOs (EO1, EO3, EO8), by making use of their Common Indicators, data and assessment results, where appropriate.

86. Monitoring and assessment efforts under Ecological Objective 6 should focus on collating data on the distribution and intensity of anthropogenic activities and pressures affecting the sea-floor, as a means to priorities monitoring of seabed state. This should also be conducted in coordination with the pressure-based Ecological Objectives (EO2, EO5, EO7), making use of their respective Common Indicators, data and assessment findings, as appropriate. Providing such information disaggregated by seabed habitat type in each assessment area is strongly recommended to facilitate its relevance and applicability within the context of EO6 assessments.

87. Ecological Objective 6 is intended to have a broad scope, encompassing all seabed habitats across the Mediterranean, from the littoral zone to the deep-sea floor. With regard to assessment scales and areas, Contracting Parties should use the agreed subdivisions of the Mediterranean region which are based primarily on biogeographic criteria, to ensure ecological coherence and comparability of results.

88. During the next phase, Contracting Parties are invited to define GES for EO6 habitats by setting quality thresholds for habitat condition, as well as acceptable limits for habitat loss and the extent of adverse effects and apply these to each habitat in an assessment area. In order to achieve GES for EO6, actions and measures should be prioritized towards those habitats and areas which are most affected by pressures (below threshold values and above acceptable limits) within each assessment area, in line with the EO6 focus on 'priority benthic habitats'.

3.3 Monitoring and Assessment of Pollution and Marine Litter related Common Indicators

Eutrophication (EO5):

89. Eutrophication is a process driven by enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus, leading to increased growth, primary production and biomass of algae; changes in the balance of nutrients causing changes to the balance of organisms; and water quality degradation.

90. Eutrophication related Common Indicators:

Common Indicator 13: Concentration of key nutrients in water column (EO5);

Common Indicator 14: Chlorophyll-a concentration in water column (EO5).

91. The monitoring of eutrophication under IMAP builds on the monitoring system of UNEP/MAP MED POL Monitoring programme. The Contracting Parties have IMAP-based monitoring programmes in place for eutrophication all over the Mediterranean basin.

92. The Contracting Parties, building on their national monitoring programmes, the lessons learned during the initial phase of implementing the Integrated Monitoring and Assessment Programme and previous MED POL experience with eutrophication, update their IMAP-based national monitoring programmes. The overall aim is to enhance harmony and coherence among the national monitoring programmes and to establish coherent datasets at the entire regional sea level.

93. The methodologies, monitoring protocols and quality control and quality assurance measures are available for the Contracting Parties in line with the Indicators' Guidance Factsheets.

94. The geographical scale of monitoring for the assessment of GES for eutrophication depends on the hydrological and morphological conditions of an area, particularly the freshwater inputs from rivers, salinity, general circulation, upwelling, and stratification.

95. The spatial distribution of the monitoring stations should thus, prior to the establishment of the eutrophication status of the marine sub-region/area, be risk-based and proportionate to the anticipated extent of eutrophication in the sub-region under consideration, as well as its hydrographic characteristics aiming for the determination of spatially homogeneous areas. Consequently, each Contracting Party determines the optimal spatial distribution of monitoring stations.

96. The Contracting Parties should use reference conditions and boundary values for chlorophyll-a (Chl-a) and nutrients, as outlined in Annex I, developed and region-wide approved for major coastal water types in the Mediterranean, including their application in the GES/non-GES /environmental classifications. To this aim, further work is required to expand and upgrade the reference conditions and boundary values for the four Mediterranean sub-regions, ensuring optimal GES assessment.

97. The Contracting Parties should use the assessment methodologies as described in the Indicators' Guidance Factsheets for eutrophication.

98. Work should be undertaken to upgrade GES reference conditions and boundary values for Chl-a, nutrients, transparency, and oxygen, using an adequate geographical scale, as well as to harmonize existing assessment tools.

99. Work should continue to further develop the assessment scales based on the monitoring scales, aiming for optimal integration of monitoring and assessment areas among the Ecological Objectives of IMAP.

100. The Contracting Parties should ensure that adequate interlaboratory quality assurance and quality control (QA/QC) procedures are established for IMAP-competent laboratories concerning Common Indicators 13 and 14, and to this aim intercalibration testing should be conducted, and the IMAP Info System should integrate data quality control categories. These efforts should be supported through greater harmonization of diverse data management systems at the international level.

101. The Contracting Parties should exchange experiences and strengthen their capacities in monitoring and conducting GES assessments at the national level, while also contributing to sub-regional and regional efforts for Common Indicators 13 and 14, based on the approved monitoring standards, assessment tools, and criteria within the framework of IMAP implementation.

Contaminants (EO9):

102. The monitoring of chemical contaminants in water, sediments and biota under IMAP builds on the monitoring system with a long-standing history in the Mediterranean, under the auspices of the UNEP/MAP Barcelona Convention, its Land-Based Protocol, and UNEP/MAP MED POL monitoring programme.

103. Contaminants related Common Indicators:

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| Common Indicator 17: | Concentration of key harmful contaminants measured in the relevant matrix (EO9, related to biota, sediment, seawater); |
| Common Indicator 18: | Level of pollution effects of key contaminants where a cause-and-effect relationship has been established (EO9); |
| Common Indicator 19: | Occurrence, origin (where possible), extent of acute pollution events (e.g. slicks from oil, oil products and hazardous substances), and their impact on biota affected by this pollution (EO9); |
| Common Indicator 20: | Actual levels of contaminants that have been detected and number of contaminants which have exceeded maximum regulatory levels in commonly consumed seafood (EO9); |
| Common Indicator 21: | Percentage of intestinal enterococci concentration measurements within established standards (EO9). |

104. All Mediterranean countries, building on their national monitoring programmes, the lessons learned during the initial phase of implementing the IMAP and previous MED POL experience with contaminants, update their IMAP-based national monitoring programmes for contaminants. The overall aim is to enhance harmony and coherence among the national monitoring programmes and to establish coherent datasets at the entire regional sea level.

105. Biological effects monitoring has been progressively integrated in the IMAP-based national monitoring programmes. It is essential to further expand and develop the use of biological effects methods, including the integration of chemical and biological effects monitoring and assessment, to cover properly the EO9.

106. In addition, it is important to further harmonize monitoring of contaminants in different matrices in order to optimize assessments at regional, sub-regional, and national levels, as well as to enhance assessment criteria and apply integrated chemical and biological assessment methods.

107. While monitoring stations are well defined in the IMAP-based national monitoring programmes, there is also a need for the Contracting Parties to strengthen monitoring in offshore areas.

108. The methodologies, monitoring protocols and, quality control and quality assurance measures, are available for the Contracting Parties in line with the Indicators' Guidance Factsheets.

109. Regarding acute pollution events, while the Contracting Parties already have existing monitoring obligations under Article 9 of the Prevention and Emergency Protocol, the efforts of which need to be strengthened, it is also foreseen that further analysis of the links between acute pollution events and effect on biota should be enhanced.

110. IMAP-based monitoring of contaminants in biota used for human consumption also builds on previous monitoring requirements and measures contaminants in foodstuffs for which the maximum regulatory limits have been set as outlined in Annex I.

111. Regarding the percentage of intestinal enterococci, threshold values are developed and region-wide agreed for the Mediterranean through Decision IG.20/9 on “Criteria and Standards for bathing waters quality in the framework of the implementation of Article 7 of the LBS Protocol” (COP 17, 2012) to ensure GES assessment of bathing water quality.

112. The Contracting Parties should use the Background Criteria (BC), Background Assessment Criteria (BAC) and Environmental Assessment Criteria (EAC) values, as outlined in Annex I, developed and region-wide approved for IMAP Common Indicators 17, 18 and 20 in the Mediterranean, including their application in the GES/non-GES /environmental classifications. To this aim, further work is required to regularly upgrade BC and BAC values, and to develop or upgrade the EAC values for IMAP Common Indicators 17, 18, and 20 by using data relevant to the specific ecological characteristics of the four Mediterranean sub-regions, ensuring optimal GES assessment.

113. The Contracting Parties should use the assessment methodologies as described in the Indicators’ Guidance Factsheets for Ecological Objective 9.

114. Work should continue in developing the assessment scales based on the monitoring scales, aiming for optimal integration of monitoring and assessment areas among the Ecological Objectives of IMAP.

115. The Contracting Parties should ensure that adequate interlaboratory quality assurance and quality control (QA/QC) procedures are enhanced for IMAP-competent laboratories concerning Common Indicators 17, 18 and 20, and to this aim intercalibration testing should be conducted, and the IMAP Info System should integrate data quality control categories.

116. The Contracting Parties should exchange experiences and strengthen their capacities in monitoring and conducting GES assessments at the national level, while also contributing to sub-regional and regional efforts for Common Indicators 17, 18, 19, 20 and 21, based on the approved monitoring standards, assessment tools and criteria within the framework of IMAP implementation.

Marine litter (EO10):

117. Marine litter monitoring builds on the monitoring requirements of the Regional Plan on Marine Litter Management in the Mediterranean (Decision IG. 25/9, COP 22), on the UNEP Guidelines for Comprehensive Beach Litter Assessment and on the Guidance on Monitoring of Marine Litter in Seas surrounding Europe and on the following agreed common indicators:

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| Common Indicator 22: | Trends in the amount of litter washed ashore and/or deposited on coastlines (EO10); |
| Common Indicator 23: | Trends in the amount of litter in the water column including microplastics and on the seafloor (EO10); |
| Common Indicator 24: | Trends in the amount of litter ingested by marine organisms and in the number of individuals entangled in marine litter (EO10). |
| Common Indicator 28: | Trends in the amount of litter coming from riverine sources (EO10). |

118. All Contracting Parties have established since 2016 national IMAP-based monitoring programmes in relation to Common Indicators 22 and 23 (in particular on beach macro-litter, seafloor macro-litter, and floating microplastics). The Contracting Parties should include in their monitoring programmes Common Indicator 24 related to ingestion and entanglement of marine litter from sea turtles and to undertake pilot monitoring activities on the latter.

119. The methodologies, monitoring protocols and quality control and quality assurance measures are available for the Contracting Parties in line with the Indicators' Guidance Factsheets.

120. The Contracting Parties should use the agreed Baseline Values (BV) and Threshold Values (TV30) for Common Indicators 22, 23 and 24 of IMAP EO10 as presented in Annex II – Part II. GES/nonGES assessment classification scales build on the Threshold Values.

121. The Contracting Parties should encourage citizens, communities (NGOs, civil society initiatives), and environmental protection associations and institutes across the Mediterranean to take part in activities related to marine litter monitoring.

122. Regarding beach macro-litter (Common Indicator 22), cost-efficient and easy to follow monitoring and sampling methodologies and techniques are well established, as described in the Indicator Guidance Factsheets, with at least two surveys per year in spring and autumn recommended and ideally 4 surveys per year in spring, summer, autumn and winter.

123. The Contracting Parties should establish their national monitoring programs for IMAP EO10 based on a master list of litter categories and items as presented in the respective Integrated Monitoring Indicator Guidance Factsheets. Further work is needed to update within IMAP EO10 for beach macro-litter, the minimum size of recorded marine litter items which need to be considered as of 2.5 cm.

124. Regarding monitoring of marine litter at the sea (Common Indicator 23), due to the low occurrence of litter in midwater, the common indicator focuses on surface floating and seafloor litter, including microplastics. Due to the observation methodology (observation from ships), the type of marine macro-litter objects can only be noted during very short visual observation. Therefore, in contrast to beach litter, only rough litter categories can be determined, even though monitoring size categories should also include relevant small items, in line with the Integrated Monitoring and Assessment Guidance.

125. The Contracting Parties are encouraged to apply the approved regional Guidelines detailing the monitoring of floating microplastics.

126. Monitoring of seafloor macro-litter (Common Indicator 23), focuses on opportunistic monitoring which is a cost-efficient method, being jointly implemented with national/regional fish-stock assessment survey programmes (e.g., the Mediterranean International Bottom Trawl Surveys (MEDITS), including the use of scuba divers and compatible professional trawling operations. Upcoming technologies based on observation/imaging (e.g., ROVs, diver-based recording etc.) may be considered and conducted also as part of other surveys (e.g., within the programmes on biodiversity, with methodologies and technical requirements prescribed in the Indicator Guidance Factsheets.

127. Riverine litter is considered as part of IMAP EO10. The Contracting Parties should/are encouraged to apply the approved region-wide Guidelines for Monitoring Riverine inputs of Marine Litter.

³⁰ Threshold Values (TV) for IMAP EO10 (Marine Litter) are subject to update for the third iteration of the MED QSR.

128. It is important to note that while micro-litter and in particular microplastics are considered in IMAP-EO10, further work is still necessary at regional level, recognizing that the understanding of the potential impact on organisms and in the environment is still under development. Contracting Parties are encouraged to undertake pilots monitoring, further research and work in this area (e.g., microplastics and mesoplastic on beaches, microplastics on sediment, pellets on beaches etc.).

129. The Contracting Parties should monitor the ingestion and entanglement of marine litter from biota, in particular from sea turtles (Common Indicator 24) considering that the most representative species are identified; in line with the approved and available region-wide monitoring protocols addressing ingestion and entanglement; They are encouraged to consider taking into account the Regional Operational Strategy and apply the approved Baseline Values (BV) and Threshold Values (TV) (Annex II – Part II).

130. In designing, upgrading their national monitoring programme, and undertaking the respective assessment for EO10, the Contracting parties are encouraged to use the Indicators' Guidance Factsheets that detail technical specifications on assessment methodologies and scales.

Energy including Underwater Noise (EO11)³¹:

131. EO 11 is introduced in IMAP with the support of experts of the Joint ACCOBAMS/ ASCOBANS/ CMS Working Group on Noise.

132. The two Common Indicators related to energy including underwater noise are:

Common Indicator 26:	Proportion of days and geographical distribution where loud, low, and mid-frequency impulsive sounds exceed levels that are likely to entail significant impact on marine animals;
Common Indicator 27:	Levels of continuous low frequency sounds with the use of models as appropriate.

133. Common Indicators 26 and 27 are more closely related to the acoustic biology of key marine mammal species of the Mediterranean which are known to be sensitive to noise, i.e., the fin whale, the sperm whale and the Cuvier's beaked whale. The monitoring strategy of these two candidate indicators, is set in the Indicators' Guidance Factsheets, ensuring an effective and widely agreed monitoring of underwater noise at a regional scale.

134. In line with the above, the Contracting Parties should consider including progressively these two Common Indicators in their IMAP-based national monitoring programmes, taking into account national specificities.

135. Work should continue by developing monitoring and assessment methodologies along with Threshold Values and GES/non-GES boundary values applied for continuous and impulsive noise.

136. For GES assessment related to EO11, the Contracting Parties should use the approved threshold levels and applied to the percentage of habitat occupied by noise-sensitive species affected by impulsive noise events concerning Common Indicator 26, following a risk-based approach, and a single Threshold Value developed and applied to the percentage of habitat of noise-sensitive species affected by continuous noise concerning Common Indicator 27.

³¹ Study reservation by Egypt

137. Work should continue to improve the quality and availability of underwater noise data, as well as monitoring and assessment practices.

3.4 Monitoring and Assessment of Coast and Hydrography related Common Indicators

Hydrography (EO7):

138. Monitoring under this ecological objective aims to address new developments of permanent alterations (constructions lasting for more than 10 years) that can potentially impact marine habitats. It is therefore closely related to CI 1 (EO1).

Common Indicator 15: Location and extent of the habitats potentially impacted by hydrographic alterations;

139. Taking into considerations the difficulty in monitoring this indicator; due to its complexity, requirements for historic data, significant human and financial resources required and alike, several CORMON meetings agreed to simplify the original Guidance Factsheet in order to allow its implementation. Simplification has been already proposed and agreed by the Meetings of the CORMON on Coast and Hydrography in 2023 and 2025.

140. In line with the above, the monitoring of CI15 focuses on:

- a) Mapping of the area where human activities cause permanent loss of the seafloor by the construction of the structure itself (i.e. the footprint of the structure);
- b) Mapping of the surrounding area around the structure of potential changes to habitats; and
- c) Intersection of the spatial map of the areas of these hydrographical changes (defined under (a) and (b)) with spatial maps of habitats (deriving from EO1) to determine the areas of individual habitat types that are impacted by hydrographical changes. Until the habitat map from EO1 is available the Contracting Parties will use their own habitat maps.

141. Two climate-change related Candidate Common Indicators are introduced under EO7 in the third phase of IMAP, aiming to support increased knowledge and application of adaptation measures to reduce the impact of climate change on the coastal and marine environment of the Mediterranean, mainly through monitoring changes of hydrographic parameters (such as temperature, Ph, salinity, sea level rise). These two new indicators should also provide valuable insights on long-term trends and shifts in climate patterns, as well as support assessment of cumulative impacts.

Candidate Common Indicator 39: Large scale changes in circulation patterns, temperature, pH, and salinity distribution;

Candidate Common Indicator 40: Long term changes in sea level.

Coastal Ecosystems and Landscapes (EO8):

142. One particularity of the IMAP (compared to other regional/RSC monitoring and assessment programmes) is the inclusion of an Ecological Objective focusing on the terrestrial part of the coastal zone. This reflects that the Barcelona Convention also covers coastal areas in its work, in line with the ICZM Protocol.

143. The coast related common indicator and candidate common indicators are as follows:

Common Indicator 16: Length of coastline subject to physical disturbance due to the influence of human-made structures

144. Based on the findings and recommendations of the 2023 MED QSR and experience from the first monitoring cycle (2018 – 2022), the Meetings of the CORMON on Coast and Hydrography in 2023 proposed minor technical improvements in the Guiding Factsheet including the inclusion of “archeological remains” and “other” structures (e.g. parking lots, quarries, pilings if not part of ports and marinas, etc.), as well as to consider off shore breakwaters as structures to be taken into account as artificial.

145. During the development of the national integrated monitoring programmes’ coastal component, the Contracting Parties, in line with the above, first need to assess the length of coastline affected by human-made structures in the current state, in line with the Indicator Guidance Factsheet, noting that the length of coastline subject to physical disturbance due to the influence of human-made structures is an impact indicator, which assumes that the coastlines occupied by human-made structures are potentially impacted areas.

146. For assessment of indicator on length of coastline influenced by human-made structures (CI16), definition of thresholds as % and / or m, to be developed, during the initial phase of IMAP, should be based on expert assisted procedure to take into account the typology of the coast including its ecosystem goods and services related to social and economic benefits. The assessment should also include disturbance that comes from such structures. The Guidance document “Assessment criteria and the Guiding document for application of assessment criteria for the IMAP Common Indicator 16” was endorsed by the Meeting of the CORMON on Coast and Hydrography in 2023, tested in Morocco and applied in Montenegro and Türkiye, should be used to define GES in other countries, as well as to define assessment requirements. This is also mandated by Decision IG.26/3 on “The 2023 Mediterranean Quality Status Report and a Renewed Ecosystem Approach Policy in the Mediterranean” (COP 23).

147. In line with the above, the monitoring under this Ecological Objective is meant to address human activities causing coastal artificialization by sealing the coast with the implementation of coastal structures and therefore impacting the coastal ecosystems and landscapes.

148. The term ‘human-made structures’ typically refers to different types of coastal defenses (such as seawalls, breakwaters, dykes etc.), ports/marinas, as well as to landward structures built on land, and intersect with the coastline.

Common Indicator 25: Land cover change

149. Based on the agreement by Contracting Parties representatives in the Meeting of the CORMON on Coast and Hydrography in 2023 and 2024, there is a sufficient ground for this candidate common indicator to become a common indicator, with the title “Land cover change”. Testing of this indicator has been carried out within several projects (SIDA, EcAp MED II and III, GEF MedProgramme); results for the Adriatic sub-region were included in the 2023 MED QSR; training sessions have been completed or are in progress for all GEF MedProgramme countries.

150. In relation to Common Indicator on land cover change (CI25), Contracting Parties are encouraged to develop monitoring programmes and undertake monitoring activities in line with the pilot monitoring undertaken since 2016, undertaken in the Adriatic and presented in the 2023 MED QSR, as well as the training /capacity building activities and pilot projects implemented in GEF MedProgramme eligible countries. This indicator is very important for the analysis of processes, including land-sea interaction and climate change impact in coastal areas and allows countries to propose adequate measures to achieve GES and mitigate Climate Change impacts. It will bring more objectivity into reporting on the state and evolution of their coastal zones and implementation of the ecosystem approach in coastal zones

151. Climate-change pose significant impacts to specific coastal ecosystems as recognized by the ICZM Protocol (Article 10) including on wetlands, coastal forests, as well as to areas threatened by flooding. Monitoring efforts should be put in place to have a holistic approach for their sustainable use, protection and restoration where needed. As all these ecosystems are under climate stress and changes happen relatively quick, the newly introduced Candidate Common Indicators would allow for adopting measures to mitigate and adapt to such changes so to maintain the diversity and integrity of coastal ecosystems and landscapes.

Candidate Common Indicator 41:Area of restored degraded coastal wetlands;

Candidate Common Indicator 42:Extent and frequency of coastal flooding;

Candidate Common Indicator 43:Changes in burnt forest areas.

Appendix 1

Updated Reference List of Species and Habitats, Assessment Criteria and Scales, Threshold and Baseline Values for Biodiversity and Non-Indigenous Species

Appendix 1: Updated Reference List of Species and Habitats, Assessment Criteria and Scales, Thresholds, Baseline Values for Biodiversity and Non-Indigenous Species

PART I: Reference List of Habitats and Species

1. Reference List of Habitats

Marine Benthic Habitat Types:

- a. B1 Coralligenous
 - i. MB1.55 Coralligenous (enclave of circalittoral)
 - ii. MC1.51 Coralligenous cliffs (with 17 sub-types)
 - iii. MC1.52a Coralligenous outcrops (with 9 sub-types)
 - iv. MC1.52b Coralligenous outcrops covered by sediment (see MC1.52a for examples of facies)
 - v. MC1.52c Deep banks (with 3 sub-types)
 - vi. MC2.51 Coralligenous platforms (with 12 sub-types)
- b. B2 Maërl
 - i. MB3.511 Association with maërl or rhodoliths³²
 - ii. MB3.521 Association with maërl or rhodoliths
 - iii. MC3.52 Coastal detritic bottoms with rhodoliths (with 9 sub-types)
- c. B3 *Posidonia*
 - i. *Posidonia oceanica* meadow (MB2.54 with 7 sub-types³³)

Pelagic Habitat Types

Table 1: Reference list of pelagic Habitat Types for the epipelagic layer (0-200m) (Annex VII of Decision IG.26/5)

	Pelagic Habitat Types	Water mass	Comments*
A.1.	Reduced salinity water	coastal lagoons	WFD correspondence ³⁴
A.2.	Variable salinity water – high surface or subsurface CHL (>3 mg/m3)	estuaries, river plumes	Transitional waters with WFD correspondence ³⁵ (Values should be revised)
A.3.	Marine water: neritic - medium surface or subsurface CHL (0.5-3 mg/m3)	upwellings, re-suspension in shallow waters and outskirts of river plumes, winter mixing areas	WFD water type II, type III
A.4.a	Marine water: oceanic - medium surface or subsurface CHL (0.5-3 mg/m3)	Upwellings, and winter mixing areas	WFD water type III
A.4.b	Marine water: oceanic - low to medium surface CHL (~0.1-1.0 mg/m3)	Hydrological features (fronts and gyres)	WFD water type III
A.5.a.	Marine water: oceanic - very low surface CHL (<0.1 mg/m3) with deep CHL maximum	euphotic depth > mixed layer depth	WFD water type III
A.5.b.	Marine water: oceanic - very low surface CHL (<0.2 mg/m3) without deep CHL maximum	euphotic depth < mixed layer depth	WFD water type III

* Each country should specify the range of Chl-a, Salinity, depth and if annual/seasonal values are used. The typology of pelagic habitats represents a general framework that can be adapted and modified by the Contracting Parties to integrate local ecosystems, features and dynamics.

³² MB3.511 and MB3.521 have the same habitat names but are listed under separate higher types (MB3.51 Infralittoral coarse sediment mixed by wave and MB3.52 Infralittoral coarse sediment under the influence of bottom currents).

³³ Sub-types for a) *Posidonia* on artificial substrata and b) *Posidonia* association with *Zostera noltii* are not specifically defined in BC or EUNIS habitat classifications.

³⁴ European Commission Decision 2018/229/EU establishing, pursuant to Directive 2000/60/EC of the European Parliament and of the Council, the values of the Member State monitoring system classifications as a result of the intercalibration exercise, and repealing Commission Decision 2013/480/EU (notified under document C (2018) 696) <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018D0229&from=PL>

³⁵ WFD Annex 2 part 1.2.3. defines Transitional waters. see also Guidance document n.o 5 , Transitional and Coastal Waters, Typology, Reference Conditions and Classification Systems and Water Framework Directive Intercalibration Technical Report - Part 3: Coastal and Transitional Waters

2. Reference List of Species:

Marine Sea Birds:

Coastal top predators: *Pandion haliaetus*

Intertidal benthic-feeders: *Charadrius alexandrinus*

Inshore benthic feeders: *Gulosus aristotelis desmarestii*

Offshore surface-feeders: *Ichthyaetus audouinii*

Inshore surface feeders: *Croicocephalus genei*, *Thalasseus bengalensis emigrates*, *Thalasseus sandvicensis*

Offshore (surface or pelagic) feeders: *Hydrobates pelagicus melitensis*, *Calonectris diomedea*, *Puffinus yelkouan*, *Puffinus mauretanicus*

Marine Mammals

Cetaceans:

- a) Baleen whales: fin whale (*Balaenoptera physalus*).
- b) Deep-diving cetaceans: sperm whale (*Physeter macrocephalus*), Cuvier's beaked whale (*Ziphius cavirostris*), long-finned pilot whale (*Globicephala melas*) and Risso's dolphin (*Grampus griseus*).
- c) Other toothed species: short-beaked common dolphin (*Delphinus delphis*), striped dolphin (*Stenella coeruleoalba*), common bottlenose dolphin (*Tursiops truncatus*).

Recommended rare species of cetaceans:

- a) Harbour porpoise (*Phocoena phocoena*)
- b) Rough-toothed dolphin (*Steno bredanensis*)
- c) False killer whale (*Pseudorca crassidens*)
- d) Killer whale (*Orcinus orca*).

Monk Seal:

- The Mediterranean monk seal (*Monachus monachus*)

Marine Turtles:

- a) Loggerhead turtle (*Caretta*; IUCN (regionally) Least Concern).
- b) Green turtle (*Chelonia mydas*; IUCN (globally) Endangered).

PART II: Assessment Criteria and Thresholds for Biodiversity Common Indicators 1 and 2**Table 2:** Proposed parameters, metrics and indices for assessing CI1 and CI2 for the three habitat types at monitoring sites.

Habitat/CI	Minimum protocol	Optimal protocol
B1 Coralligenous CI1	Habitat extent (km ²) Habitat loss (m ²) Extent (km ²) and proportion (%) of habitat loss across all monitored sites	Extent of habitat loss at assessment area/national level
B1 Coralligenous CI2	For MACS (Enrichetti et al., 2019): Extent of hard bottom (% rock and biogenic) Species richness of conspicuous megabenthic sessile and sedentary species Structuring species: count, height (cm) and density (no. of colonies/individuals m ⁻²) % sediment cover % of colonies with epibiosis, necrosis and entangled in lost fishing gears for all structuring anthozoans Marine litter (density m ⁻²)	For EBQI ³⁶ and other indices (Di Camillo et al., 2023): Typical species composition Condition of key species/groups: • Filter- and suspension feeders (cover and diversity) • Detritivores abundance • Related fish assemblage biomass (distinguishing piscivores, carnivores of invertebrates, planktivores) Sensitivity level
B2 Maërl CI1	Analysis of existing knowledge (scientific and grey literature) on the presence of maërl/rhodolith beds Habitat extent (km ²) ³⁷ Habitat loss (m ²) Extent (km ²) and proportion (%) of habitat loss across all monitored sites	Extent of habitat loss at assessment area/national level
B2 Maërl CI2	Index to be defined. Rhodolith/maërl (% cover live and dead) Rhodolith/maërl density	Index to be defined. Species composition: abundance and diversity (filter-feeders, carnivores, detritivores, etc.) including echinoderms Particulate organic matter cover Detritic litter cover Rhodolith size and shape
B3 <i>Posidonia</i> CI1	Habitat extent (km ²) Habitat loss (m ²) Upper and lower depth limit of meadow (to nearest 0.1m) at monitored sites Extent (km ²) and proportion (%) of habitat loss across all monitored sites Change in vertical distribution of habitat (+ or – m) at monitored sites	Extent of habitat loss at assessment area/national level
B3 <i>Posidonia</i> CI2	For PREI (Gobert et al., 2009): Leaf surface Leaf biomass Shoot density Lower limit depth and type Leaf epiphytes biomass For BiPO (Lopez y Royo et al., 2010) (same parameters as PREI but without sampling living material): Leaf surface Shoot density Lower limit depth and type For functional assessment: Sea urchin density	For EBQI (Personnic et al., 2014): Growth rate of vertical rhizomes Meadow cover Biomass density and species diversity in all compartments: • Filter- and suspension feeder density • Sea urchin <i>Paracentrotus lividus</i> density • Related fish assemblage biomass (distinguishing piscivores, carnivores of invertebrates, planktivores) • <i>Pinna</i> spp. density (not only <i>Pinna nobilis</i> now that <i>P. rudis</i> occurrence is increasing)

³⁶ FR: From Ruitton et al. 2014 updated by Astruch et al. (under review). See also:https://www.researchgate.net/publication/325607434_Guide_methodologique_pour_l%27evaluation_ecosystemique_des_habitats_marins.³⁷ ES: To estimate this parameter for RMBs, firstly it will be necessary to have the maps of the benthic biocenoses throughout the entire continental shelf. Currently, these maps are only available for certain (few) areas.

Habitat/CI	Minimum protocol	Optimal protocol
All sites	Parameters related to water quality (sea temperature, salinity, turbidity, transparency)	

Table 3: Overview of the main aspects of monitoring and assessment elements for CI1 and CI2 for the three habitat types Posidonia, coralligenous and maërl

Element	CI1 & CI2
Habitat types	Define more clearly each of the habitat types, including specification of which EUNIS/BC subtypes are to be considered, and the most important pressures they face
Monitoring scale: number of sites	A minimum of five sites per habitat type per assessment area (28 subdivisions of Mediterranean region) Sites to be distributed across countries within each assessment area, and represent a gradient of conditions from impacted to non-impacted locations Assess state of habitats (extent and condition) at monitoring sites as a proxy for their state across the wider assessment areas and region (to make monitoring and assessment process feasible for all Contracting Parties)
Monitoring methods: parameters	Refer to Table 2 for minimum and optimal set of parameters per habitat type.
State/impact monitoring in context of pressures	Sites selected for detailed monitoring should include a range of pressures or intensities of pressures, as well as sites which are 'unimpacted'. Pressures (and related activities) should be reported at monitoring sites and across each country (linked to EO6), assigning data to a standardised grid system.
Assessment scale	Use same set of assessment areas (28 subdivisions of the 4 Mediterranean subregions) as proposed for EO6.
Assessment methods	Use several indicators to represent differing aspects of habitat distribution and extent (CI1) and structure and function (CI2), as given in Table 2. The indicators need testing with data from multiple CPs to help define suitable thresholds and ensure comparability of results across the region.
Data standards	Simplify data standards to facilitate data submission and aggregation for analyses.
Baselines	Use unimpacted sites to establish the current extent and state of each habitat type in reference state (under prevailing physiographic, geographic, climatic and environmental conditions).
Quality threshold	Re-evaluate threshold once sufficient data are available to set fully meaningful threshold for the assessment area/subregion and habitat type. Ensure equivalent level of quality across assessment areas, habitats, indicators and pressures.
Extent thresholds	Set thresholds for the maximum extent of habitat loss (for CI1) and habitat which is adversely affected (for CI2) that is permitted per habitat in each assessment area.
Progress with monitoring and assessment processes	Contracting Parties should update their monitoring programmes, if necessary, based on general agreements for monitoring and assessment elements. SPA/RAC should evaluate progress in implementation of the monitoring programmes, say at a mid-point in the 6-year data collection phase. This evaluation should include the state of data submissions to the IMAP Info System and undertaking a trial region-wide assessment. Outcomes should guide further implementation of the programmes in the lead up to the next MED QSR assessment.

PART III: Assessment Criteria and Thresholds for Biodiversity Common Indicators 3, 4 and 5 related to Marine Mammals

Table 4: Biodiversity common indicators 3, 4 and 5 related to Marine Mammals (Ecological Objectives, GES Definitions and Targets, Monitoring and Assessment Scales, Assessment Criteria, Threshold and Baseline Values) (Extracted from UNEP/MED WG.514/Inf.11³⁸)

Common Indicator 3 (CI3) ³⁹					
Refining scales of <u>monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		Developing scales of assessment (if different from those of monitoring) and assessment criteria		Develop threshold and baseline values	
Species/functional group	Proposed changes Key: WM=Western Mediterranean; I&CM=Ionian and Central Mediterranean; A=Adriatic; A&LS=Aegean and Levantine seas.	Existing context	Proposed changes	Existing context	Proposals
Fin whale / Mysticetes	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: standard & synchronised between all countries (i.e. ASI-like). - Frequency: at least once per reporting period. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority sub-regions (HP): in WM and I&CM key habitats for this species (i.e. feeding, corridor). - Low priority sub-regions (LP) in A and A&LS. - Method: - in HP: systematic regular monitoring (including photo-id). - in LP complement systematic monitoring with other adequate and standard method (UNEP MAP 2019). - Frequency: - in HP sub-regions the minimum requirement is at least three times (better annually in selected places); - in LP at least one time over the reporting period.	New proposal in UNEP/MED WG.450/3: Regional: large cetaceans	- Primary assessment/MRU: Regional. - Frequency: once every reporting period.	None	Reference values distributional range: <u>Mediterranean cetaceans (all species)</u>: map to be created based on Mannocci et al. 2018, Canadas et al. 2018 (<i>Ziphius</i>) <u>Adriatic cetaceans</u>: Fortuna et al. 2018 (<i>Tusiops</i>, <i>Stenella</i>) <u>Monk seals</u>: map to be created based all existing data. Thresholds for distributional range: - The extent of the distribution of each species remains stable or expanding compared to a reference map (see above). In particular, the Extent of occurrence (EOO) shows: 1) no decline (in all sub-regions where the species was regularly found since last assessment, 2) no decline of number of locations or local putative populations for the species within its distributional range. Given the difficulty to assess the distribution of cetacean species at a finer scale, both reference values and thresholds for this CI should be revised at each assessment cycle.
Sperm whale / Odontocete (deep feeder)	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: As in previous cell. - Frequency: As in previous cell. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority (HP) in WM, I&CM and A&LS key habitats for this species (i.e. breeding, corridor). - Low priority (LP) in A - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell.			None	
Cuvier's beaked whale (deep feeder)	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority (HP) in WM, I&CM and A&LS key habitats for this species (i.e. feeding). - Low priority (LP) in A - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell.			None	

Key: MS=Monitoring Scale, AS=Assessment Scale, MRU=Marine Reporting Units

³⁸ 8th Meeting of the Ecosystem Approach Coordination Group (EcAp CG), Videoconference, 9 September 2021.

³⁹ <https://www.medqsr.org/common-indicator-3-species-distributional-range-marine-mammals>

Common Indicator 3 (CI3)					
Refining scales of <u>monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		Developing scales of assessment and assessment criteria		Develop threshold and baseline values	
Species/ functional group	<i>Proposed changes</i> Key: WM=Western Mediterranean; I&CM=Ionian and Central Mediterranean; A=Adriatic; A&LS=Aegean and Levantine seas.	<i>Existing context</i>	<i>Proposed changes</i>	<i>Existing context</i>	<i>Proposals</i>
Long finned pilot whale (epipelagic feeder)	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: standard & synchronised between all countries (i.e. ASI-like). - Frequency: at least once per reporting period. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority sub-regions (HP) in WM key habitats for this species (i.e. feeding, corridor). - Low priority (LP) in I&CM. - Method: - in HP: systematic regular monitoring; - in LP complement systematic monitoring with other adequate and standard method (UNEP MAP 2019). - Frequency: - in HP sub-regions the minimum requirement is biannual; - in LP at least one time over the reporting period.	New proposal in UNEP/MED WG.450/3: • Sub-regional: small cetaceans	- Primary assessment/MRU: Regional. - Frequency: once every reporting period.	None	See previous page.
Risso's dolphin (epipelagic feeder)	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: As in previous cell. - Frequency: As in previous cell. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority sub-regions (HP) in WM & A key habitats for this species (i.e. feeding, corridor). - Low priority (LP) in I&CM and A&LS. - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell.			None	
Bottlenose dolphin (epipelagic feeder)	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: As in previous cell. - Frequency: As in previous cell. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority sub-regions (HP) in key habitats for this species in all sub-regions (i.e. feeding, corridor). - Low priority (LP) in offshore areas. - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell.			None	
Common dolphin (epipelagic feeder)	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: As in previous cell. - Frequency: As in previous cell. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority sub-regions (HP) in WM, A&LS key habitats for this species (i.e. feeding, corridor). - Low priority (LP) in A, I&CM. - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell.			None	
Striped dolphin (epipelagic feeder)	<u>Primary monitoring</u> - Geographic scale: Regional. - Method: As in "Fin whale" cell (except for photo-id). - Frequency: As in "Fin whale" cell.			None	

Common Indicator 3 (CI3)					
Refining scales of <u>monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		Developing scales of assessment and assessment criteria		Develop threshold and baseline values	
Species/ functional group	<i>Proposed changes</i> Key: WM=Western Mediterranean; I&CM=Ionian and Central Mediterranean; A=Adriatic; A&LS=Aegean and Levantine seas.	Existing context	Proposed changes	Existing context	Proposals
Monk Seal	<u>Primary monitoring</u> - Geographic scale: Sub-regional - In Group A countries: - Specifically, monitor populations in sites consistent with the Regional Strategy for the conservation of Monk seal in the Mediterranean (RSMS). - In Group B and C countries: area with suitable habitat and/ historical presence. - Method: - In Group A countries: - Registry on opportunistic sightings / citizen science - Photo traps in selected caves - In Group B & C countries: - Registry on opportunistic sightings (minimum requirement) - Photo traps in selected caves of selected locations identified by the revised RSMS. - Frequency: Annual (minimum requirement) or all known locations in each Group A country covered at least three times (biannually) per reporting period.	None	- Primary assessment/MRU: Regional. - Frequency: once every reporting period.	None	Reference values distributional range: <u>Monk seals</u>: map to be created based all existing data.

Key: MS=Monitoring Scale, AS=Assessment Scale, MRU=Marine Reporting Units

Common Indicator 4 (CI4)					
Refining scales of <u>monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		Developing scales of assessment and assessment criteria		Develop threshold and baseline values	
Species/function group	<u>Proposed changes</u> Key: WM=Western Mediterranean; I&CM=Ionian and Central Mediterranean; A=Adriatic; A&LS=Aegean and Levantine seas.	<u>Existing context</u>	<u>Proposals</u>	<u>Existing context</u>	<u>Proposals</u>
Fin whale	<u>Primary monitoring</u> • <i>Geographic scale</i>: Regional. • <i>Method</i>: standard & synchronised between all countries (i.e. ASI-like). • <i>Frequency</i>: at least once per reporting period. <u>Secondary monitoring</u> • <i>Geographic scale</i>: Sub-Regional / National. ◦ <i>High Priority sub-regions</i> (HP): in WM and I&. ◦ <i>Low priority</i> (LP): in A and A&LS. • <i>Method</i>: ◦ in HP: systematic regular monitoring (including photo-id); ◦ in LP complement systematic monitoring with other adequate and standard method (UNEP MAP 2019). • <i>Frequency</i>: ◦ in HP sub-regions the minimum requirement is biennial. ◦ in LP at least one time over the reporting period.	IMAP Monitoring Protocols 2019	• Assessment / MRU: Regional. • Frequency: once every reporting period.	None	• Check IUCN Mediterranean Red Listing and if EN, CR, VU then maintain total abundance at or above reference levels. • When listed as LC, no decrease of ≥20% over 3 generations (1.5% within a 6-year reporting period). • Regional reference value: ASI 2018 DS design-based estimate (see Box 4 for details).
Sperm whale	<u>Primary monitoring</u> : As in “Fin whale” cell. <u>Secondary monitoring</u> : • <i>Geographic scale</i>: Sub-Regional / National. ◦ HP: in WM, I&CM and A&LS. ◦ LP: in A. • <i>Method</i>: As in “Fin whale” cell. • <i>Frequency</i>: As in “Fin whale” cell.	None.		None.	• Check IUCN Mediterranean Red Listing and if EN, CR, VU then maintain total abundance at or above reference levels. • When listed as LC, no decrease of ≥20% over 3 generations (1.3% within a 6-year reporting period). • Regional reference value: ASI 2018 DS design-based estimate (see Box 4 for details).
Cuvier’s beaked whale	<u>Primary monitoring</u> : As in “Fin whale” cell. <u>Secondary monitoring</u> • <i>Geographic scale</i>: Sub-Regional / National. ◦ HP in WM, I&CM and A&. ◦ LP in A. • <i>Method</i>: As in “Fin whale” cell. • <i>Frequency</i>: As in “Fin whale” cell.	None.		None.	• Check IUCN Mediterranean Red Listing and if EN, CR, VU then maintain total abundance at or above reference levels. • When listed as LC, no decrease of ≥ 1.5% within a 6-year reporting period. • Regional reference value: Canadas <i>et al.</i> 2018 & ASI 2018 DS design-based estimate (see Box 4 for details).
Long finned pilot whale	<u>Primary monitoring</u> : As in “Fin whale” cell. <u>Secondary monitoring</u> • <i>Geographic scale</i>: Sub-Regional / National. ◦ High Priority sub-regions (HP) in WM. ◦ Low priority (LP) in I&CM. • <i>Method</i>: As in “Fin whale” cell. ◦ <i>Frequency</i>: As in “Fin whale” cell.	None.		None.	• Check IUCN Mediterranean Red Listing and if EN, CR, VU then maintain total abundance at or above reference levels. • When listed as LC, no decrease of ≥20% over 3 generations (1.7% within a reporting period). • Regional reference value: ASI 2018 DS design-based estimate (see Box 4 for details).

Risso's dolphin	<u>Primary monitoring:</u> As in "Fin whale" cell. <u>Secondary monitoring</u> • Geographic scale: Sub-Regional / National. ○ High Priority sub-regions (HP) in WM & A. ○ Low priority (LP) in I&CM and A&LS. • Method: As in "Fin whale" cell. • Frequency: As in "Fin whale" cell.	None.		None.	• Check IUCN Mediterranean Red Listing and if EN, CR, VU then maintain total abundance at or above reference levels. • When listed as LC, no decrease of $\geq 20\%$ over 3 generations (2.0% within a reporting period). • Regional reference value: ASI 2018 DS design-based estimate (see Box 4 for details).
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Key: MS=Monitoring Scale, AS=Assessment Scale, MRU=Marine Reporting Units

Common Indicator 4 (CI4)					
STEP 1 Refining scales of <u>monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		STEP 2 Developing scales of assessment and assessment criteria		STEP 3 Develop threshold and baseline values	
Species/functional group	Proposed changes Key: WM=Western Mediterranean; I&CM=Ionian and Central Mediterranean; A=Adriatic; A&LS=Aegean and Levantine seas.	Existing context	Proposals	Existing context	Proposals
Bottlenose dolphin	<u>Primary monitoring</u> : As in "Fin whale" cell. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority sub-regions (HP). - Low priority (LP) in offshore areas. - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell.	None.		None.	- Check IUCN Mediterranean Red Listing and if EN, CR, VU then maintain total abundance at or above reference levels. - No decrease of ≥20% over 3 generations (1.9% within a reporting period). - Regional reference value: ASI 2018 DS design-based estimate (see Box 4 for details). - Adriatic: Reference value (2010: Fortuna et al. 2018)
Common dolphin	<u>Primary monitoring</u> : As in "Fin whale" cell. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional / National. - High Priority sub-regions (HP) in WM, A&LS key habitats for this species (i.e. feeding, corridor). - Low priority (LP) in A, I&CM. - Method: As in "Fin whale" cell. - Frequency: As in "Fin whale" cell.	None.		None.	- Check IUCN Mediterranean Red Listing and if EN, CR, VU then maintain total abundance at or above reference levels. - When listed as LC, no decrease of ≥20% over 3 generations (2.7% within a reporting period). - Regional reference value: ASI 2018 DS design-based estimate (see Box 4 for details).
Striped dolphin	<u>Primary monitoring</u> : As in "Fin whale" cell.	None.		None.	- Check IUCN status and if EN, CR, VU then > only. - Maintain total abundance at or above reference levels. - When listed as LC, no decrease of ≥20% over 3 generations (1.8% within a reporting period). - Regional reference value: ASI 2018 DS design-based estimate (see Box 4 for details).
Monk Seal	<u>Primary monitoring (pending definition of a single standardized method to avoid double-counting and allow inter-regional comparison)</u> - Geographic scale: Sub-regional - Method: - Group A countries: - Individuals counts based on cave monitoring (minimum requirement) and/or mark-recapture based on photo-identified seals data in sites consistent with the revised Monk seal strategy. - Group B & C countries: - Photo-identification of individuals based on images obtained from non-invasive monitoring of resting caves. Caves in sites that require monitoring should be decided based on evidence of recurrent sightings recorded through the results of the opportunistic sighting registry - Frequency: Annual.	None.	Assessment/MRU: Regional	None.	- Increase on total population of 1% over six-year reporting period AND increase in number of pups compared to the last assessment. - Provisional reference value: to be estimated.

Key: MS=Monitoring Scale, AS=Assessment Scale, MRU=Marine Reporting Units

Common Indicator 5 (CI5)					
Refining scales of <u>monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		Developing scales of assessment and assessment criteria		Develop threshold and baseline values	
Species/ functional group	Proposed changes Key: WM=Western Mediterranean; I&CM=Ionian and Central Mediterranean; A=Adriatic; A&LS=Aegean and Levantine seas.	Existing context	Proposals	Existing context	Proposals
Cetaceans (<i>Stenella</i> , <i>Tursiops</i> and <i>Balaenoptera</i> as proxy for functional groups)	<u>Primary monitoring</u> - Geographic scale: Sub-regional / National. - Species: focus on <i>Stenella</i>, <i>Tursiops</i> and <i>Balaenoptera</i>. Parameters: - adult survival probability, juvenile survival probability; fecundity/breeding productivity/rate; age class distribution; sex ratio; population growth rate. Method: - Stranding network collecting standard measures and biological material (e.g., teeth and reproductive organs) - Photo-ID network collecting standard pictures (list of parameters including calf) Frequency: continuous for strandings', regularly and frequent for photo-ID. <u>Secondary monitoring</u> - Geographic scale: Sub-Regional. - Method: one dedicated concerted and cooperative campaign collecting biopsies (for sex ratio, and hormones rates). - Frequency: at least once per reporting period.		- Assessment/MRU: Sub-regional & all "local populations" (long-term studies). - Frequency: once per reporting period.		It is not possible to develop reference and threshold values at this point.
Monk seal	<u>Primary monitoring</u> - Geographic scale: Sub-regional in countries Group A. - Method: Pup counts in critical/selected breeding caves (minimum requirement). - Frequency: annual.		- Assessment/MRU: Sub-regional & all "colonies". - Frequency: once per reporting period.		Reference values demography: <u>Total annual national pup counts</u>: to be estimated. <u>Annual birth rate</u>: define index areas and produce estimates. Threshold values: - Increase from last assessment.

Key: MS=Monitoring Scale, AS=Assessment Scale, MRU=Marine Reporting Units

CI12: Bycatch of vulnerable and non-target species (EO1 and EO3)					
Refining scales of monitoring, by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		Developing scales of assessment and assessment criteria		Develop threshold and baseline values	
Species/ functional group	<i>Proposed changes</i> Key: WM=Western Mediterranean; I&CM=Ionian and Central Mediterranean; A=Adriatic; A&LS=Aegean and Levantine seas.	<i>Existing context</i>	<i>Proposals</i>	<i>Existing context</i>	<i>Proposals</i>
Marine mammals	• In each GFCM GSA, at least one year of cetacean bycatch rate monitoring per each high priority fishing métiers (to be defined), within each reporting cycle. • GFCM provides data on fishing effort during reference year for priority fishing métiers, for each GSA. • Annually: bycatch (onboard observations, questionnaires and strandings) and systemic pollution (strandings) • CPs monitor their fleets (at least one métier per sub-region per year, rotating). • National stranding network collect data on fishery-induced mortality and level of pollutants in marine mammal tissues. They provide biennial reports on these matters. • Each CP: national monitoring schemes to provide bycatch rates and annual fishing effort.		• Assessment /MRU: Regional & Sub-regional (or aggregated GFCM GSAs). • Frequency: annual or biennial.		• Regional: BRA on each species for the potentially most dangerous fishing gears. ◦ Threshold of the total estimated bycatch per all fishing gears: 1% of the total population. This triggers in-depth monitoring programmes. • Sub-regional: <i>thresholds</i> calculated with CLA or RLA on each species, based on actual observations on bycatch rates, total fishing effort, biological parameters and conservation objectives (CLA = 72% K; RLA = 80% K).

Key: MS=Monitoring Scale, AS=Assessment Scale, MRU=Marine Reporting Units

PART IV Assessment Criteria, Thresholds and Baseline Values for the IMAP Common Indicators 3, 4 and 5 related to Marine Turtles

Table 5. Summary Tables of the methodological approach and results of the analysis on monitoring and assessment scales, assessment criteria and thresholds and baseline values for the Common Indicators 3,4 and 5 related to sea turtles

Common Indicator 3 (CI3)							
STEP 1 Refining <u>scales of monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		STEP 2 Developing <u>scales of assessment</u>		STEP 3 Developing <u>assessment criteria</u>		STEP 4 Develop <u>threshold and baseline values</u>	
Existing context	Proposed changes	Existing context	Proposals	Existing context	Proposals	Existing context	Proposals
Species distribution ranges ⁴⁰ can be gauged at local (i.e., within a small area like a national park) or regional (i.e., across the entire Mediterranean basin) scales using a variety of approaches. Long- term monitoring of these areas provides information on the temporal evolution in species distributions.	Revise mapping requirements to two maps; one for <u>nesting areas</u> and one for <u>marine areas</u>. <u>Nesting areas monitoring</u> - Geographic scale: (sub-)National. Up to 7 established sites or 75% of national nesting activity (index areas) - Method: - ostandard nesting beach surveys. - Frequency: - Minimum = June/July annually for index areas. - osix-yearly national scale. <u>Nearshore monitoring</u> - Geographic scale: (sub-)National. Up to 4 sites. - Method: - osystematic regular monitoring index areas. - obycatch/stranding data. - Frequency: - obiannual monitoring index areas. - oyear-round bycatch/stranding recording. - osix-yearly national scale. <u>Offshore monitoring</u> - Geographic scale: (sub-)National/regional. - Method: - Aerial surveys - Boat surveys - Bycatch recording. - Opportunistic boat surveying. - Frequency: - Yearly for aerial and boat surveys - Year-round for bycatch records - Ad hoc boat surveying. - osix-yearly national scale.	The European (ETRS) 10x10km grid is used for mapping the distribution and range... Three different maps (grids) are produced yearly for each species accounting for breeding sites, wintering sites and feeding/developmental sites. Number of 10x10 km cells (presence/absence) occupied for breeding or wintering or feeding/developmental areas along the Mediterranean (or subregional) coast and in all pelagic marine areas.	<u>Nesting areas</u> National and Subdivisional level GES assessments based on maintenance of distribution of all nesting sites. <u>Marine areas</u> Subregional GES assessments.	Turtles continue to nest in all known nesting sites. Turtle distribution is not significantly affected by human activities.	<u>Nesting areas</u> Turtles remain present in all parts of annually monitored nesting sites and at all established sites during periodic surveys. <u>Marine areas</u> Turtles remain present in all annually monitored, CP defined, hotspot areas and no evidence of definitive absences in any other area within the RMU distribution.	None	<u>Nesting areas</u> Baselines centred on 1992 to be used for established nesting sites. More recent data to be modelled to 1992 era levels for these sites. New and emerging sites to use maximum existing 6- year average as baseline. <u>Marine areas</u> All areas assumed to have turtle presence (in line with updated IUCN-MTSG RMU boundaries) unless proven otherwise.

⁴⁰ <https://www.medqsr.org/common-indicator-3-species-distributional-range-marine-turtles>

Common Indicator 4 (CI4)							
STEP 1 Refining <u>scales of monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		STEP 2 Developing <u>scales of assessment</u>		STEP 3 Developing <u>assessment criteria</u>		STEP 4 Develop <u>threshold and baseline values</u>	
Existing context	Proposed changes	Existing context	Proposals	Existing context	Proposals	Existing context	Proposals
For counts carried out on an annual basis, a number of sites should be selected that represent a sufficiently large proportion of the subregional or national population, with criteria being delineated by expert groups. of selected species ⁴¹	<u>Nesting areas monitoring</u> • Geographic scale: ○ (sub-)National. Up to 7 sites or 75% of national nesting activity (index areas) • Method: ○ standard nest count surveys. • Frequency: ○ Minimum = June/July annually for index areas. ○ six-yearly national scale. <u>Nearshore monitoring</u> • Geographic scale: ○ (sub-)National. Up to 4 sites. • Method: ○ systematic regular monitoring index areas. ○ bycatch/stranding data. • Frequency: ○ biannual monitoring index areas. ○ year-round bycatch/stranding recording.	For counts carried out on an annual basis, a number of sites should be selected that represent a sufficiently large proportion of the subregional or national population, with criteria being delineated by expert groups. The “Demography Working Group” suggests that comprehensive surveys should be carried out every 5 years, with the aim of covering all breeding, foraging, wintering and developmental sites. However, here, it is recommended that the whole coastal and marine area is covered on a national or subregional scale to take into account changes in population	<u>Nesting areas</u> National and Subdivisional level GES assessments based on maintenance of nesting abundance at all sites. <u>Marine areas</u> Subregional GES assessments based on relevant population segments present in each area.	<u>Nesting areas</u> The average breeding population size during at least a decade is suggested as the base level (based on International Union for Conservation of Nature Red List minimal criteria for sea turtles) <u>Marine areas</u> for non-breeding animals at wintering / foraging / developmental sites, number of individuals (n) with appropriate modelling to extrapolate population numbers	<u>Nesting areas</u> Rolling average of previous six years’ data to count in the annual assessment. To coincide with the six-yearly nationwide GES assessments. <u>Marine areas</u> Rolling average of previous six years’ data to count in the annual assessment. To coincide with the six-yearly nationwide GES assessments. Observations on numbers of turtles in different life-stages and sex ratios to be considered	None.	<u>Nesting areas</u> Baselines centred on 1992 to be used for established nesting sites. More recent data to be modelled to 1992 era levels for these sites. New and emerging sites to use maximum existing 6-year average as baseline. <u>Marine areas</u> GES baseline taken as annual abundance derived from existing modelled

⁴¹ <https://www.medqsr.org/common-indicator-4-population-abundance-selected-species-marine-reptiles>

Cardona L, et al. (2015) Demography of marine turtles nesting in the Mediterranean Sea: a gap analysis and research priorities. Demography Working Group of the 5th Mediterranean Conference on Sea Turtles. 37pp. Bern Convention, T-PVS/Inf (2015) 1

4 Sparks LM & DiMatteo AD (2020) Loggerhead sea turtle density in the Mediterranean Sea. NUWC-NPT Tech Rep 12360. 77pp.

Common Indicator 5 (CI5)

Common Indicator 5 (CI5)							
STEP 1 Refining <u>scales of monitoring</u> , by revising the existing IMAP proposals and identifying adequate scales for the most relevant species in the Mediterranean context.		STEP 2 Developing <u>scales of assessment</u>		STEP 3 Developing <u>assessment criteria</u>		STEP 4 Develop <u>threshold and baseline values</u>	
Existing context	Proposed changes	Existing context	Proposals	Existing context	Proposals	Existing context	Proposals
A number of sites should be selected that represent a <i>sufficiently large proportion of the subregional or national population for demographic data to be collected (reflecting the breeding, wintering, foraging and developmental populations that are representative of the region)</i> ⁴² . If possible, populations should be selected where animals have been tracked with a sufficient number of units (i.e., >50 individuals), from which the connectivity among these different habitat types can be established.	<u>Nesting areas monitoring</u> - Geographic scale: (sub-)National. Up to 7 established sites or 75% of national nesting levels - Methods: - Standard: hatchling emergence success (HES) and nest temperature data. - Additional: Sex ratio adults - Frequency: - Annually, Minimum: Aug./Sept. for index area HES and May-September for temperature data. April-May for adult sex ratios. - six-yearly national scale. <u>Nearshore monitoring</u> - Geographic scale: (sub-)National. Up to 4 index hotspot sites. - Method: - systematic regular monitoring index areas. - bycatch/stranding data. - Frequency: - biannual monitoring index areas. - year-round bycatch/stranding recording. - six-yearly national scale. <u>Offshore monitoring</u> - Geographic scale: (sub-)National. - Method: - Bycatch recording. - Opportunistic boat surveying. - Frequency: - Year-round bycatch records <i>Ad hoc</i> boat surveying. - six-yearly national scale.	The selected breeding sites should aim to be genetically diverse, so as this diversity can be detected at foraging/ wintering/ developmental grounds where different populations diverge. This will facilitate the selection of marine areas for protection that support the highest genetic diversity (i.e., the greatest accumulation of different breeding populations), as well as those that support single breeding populations, which may be of equal importance. Opportunistic data should be collected from all possible sources, wherever possible, and compiled into a single database, which might be used to provide an overview of the entire area. Knowledge about the sex, health and genetic structure of the different populations/sub-populations will be obtained, by Understanding recruitment and mortality within different parts of a population and across populations. This information is important to understand whether there are sex-specific mortality risks at different age/size classes, which is important towards aiding population recovery. Also, knowledge on the physical health and genetic health of populations will be obtained, which will indicate the capacity for resilience to human activities, including climate change.	<u>Nesting areas</u> National and Subdivisional level GES assessments. <u>Marine areas</u> Subregional GES assessments.	publication). Most studies that do exist are focused on the breeding areas; thus, greater focus is required at foraging, wintering and developmental areas, with in-water limitations needing to be accounted for in analyses. Therefore, set analyses need to be established that are applicable within and/or across the different habitat types to allow comparison at the Mediterranean level.	<u>Nesting areas</u> Maintenance of suitable hatchling sex ratios and high hatchling emergence success. <u>Marine areas</u> Quantification of bycatch and calculation of bycatch mortality rates. Observations on numbers of turtles in different life-stages and sex ratios to be considered for indications of perturbations in population structure.	No threshold and baseline values have been consistently defined and applied to date.	<u>Nesting Areas</u> 'Good' HES values can be taken from published literature and taken as thresholds with a buffer zone for improved conservation measures. Nest temperature records to be monitored with estimations of over 95% female production as an upper threshold. <u>Marine areas</u> Human-induced mortality as a component of longevity and survivorship is the one factor that can be measured and affected by conservation actions and hence can be considered as an actionable indicator for GES. Numbers of deaths should be used as the indicator with a stable or declining trend in numbers indicating GES

⁴² <https://www.medqsr.org/common-indicator-5-population-demographic-characteristics-marine-reptiles>

PART V: Assessment Criteria, Thresholds and Baseline Values for the IMAP Common Indicators 3, 4 and 5 related to Sea Birds**Table 6.** Summary Tables of the methodological approach and results of the analysis on monitoring and assessment scales, assessment criteria and thresholds and baseline values for the Common Indicators 3,4 and 5 related to seabirds

	Species	Common Indicator	Assessment Criteria	Baseline	Threshold	Scales of Assessment	Scales of Monitoring
1	Osprey <i>Pandion haliaetus</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding birds. % Shift in occupancy	Reference-based baseline: pristine conditions baseline with widest known range in the last 100 years. Modern baseline: If no reliable historic data are available, modern baseline with widest known range in last 20 years	Not more than 10% deviation from baseline	Spatial: Regional and sub- regional Temporal: Annual, with reporting every six years	Spatial: National, surveys covering at least all known breeding areas Temporal: Annual where feasible and depending on scale, alternatively one time to two times within six years, linked to IMAP reporting cycles
		CI 4: Population abundance	Annual relative breeding bird abundance (annual abundance / baseline abundance)	Reference-based (modern) baseline: Abundance at the start of the implementation of BD (1981) Alternatively: highest breeding abundance estimate in the last 20 years Additionally: Highest abundance of entering population in the last 20 years	Deviation from baseline: annual relative breeding and wintering abundance > 0.7	Spatial: Regional and sub- regional (all sub-regions, but with main focus on Western Mediterranean Sea) Temporal: Aiming at annual assessment with reporting every six years	Spatial: National or sub- national (aiming at 100% of known nesting sites) Temporal: Annual
		CI5: Population Demographic Characteristics	Population growth rate: Reproductive success of monitored nests Survival rates of adult and young from capture-mark-resighting (colour-ringing of nestlings)	Model-based baseline: growth rates in the last assessment cycle Population	Deviation from growth rate of 1.0 or higher baseline: Population	Spatial: Regional, sub- Temporal: Annual breeding success and survival rates with reporting every 6 years regional and national	Spatial: National or sub-national, aiming at 100% assessment (all known nests) of reproductive success Representative subsample of accessible nests for colour- ringing of nestlings Temporal: Annual for breeding success and survival via reading of colour rings

2	Kentish Plover <i>Charadrius alexandrinus</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding and wintering populations % Shift in occupancy for breeding and wintering population	Reference-based baseline for breeding and wintering population separately: Widest known range in the last 20 years, except a major and reversible decline in the range is known to have taken place before	Not more than 10% deviation from baseline	Spatial: Sub-regional Temporal: Every six years	Spatial: National Temporal: Annual
		CI 4: Population abundance	For breeding birds: Annual relative breeding bird abundance For non-breeding birds: Annual relative wintering bird abundance	Reference-based (modern) baseline: Highest breeding abundance estimates and wintering abundance estimates (separately) in the last 20 years	Deviation from baseline: annual relative breeding and wintering abundance > 0.7	Spatial: Sub-regional Temporal: Every 6 years, linked to IMAP reporting cycle, alternatively every 3 years linked to NE-Atlantic flyway count initiative	Spatial: Breeding population: National or sub-national (at least 40% of the national breeding population and certainly no less than 10% of the national population.) Non-breeding population: sub-national representative number of known sites
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success of monitored nests reproductive success Adult survival rates from capture- mark-resighting of monitored nests (colour-ringing of breeding adults) Immature survival rates from capture- mark-resighting (via colour ringing of chicks directly after hatching)	Model-based baseline: Population growth rates in the last 6 to 12 years where data is available	Population growth rate to be set close to 1.0 over a 6-year average as requirement to reach GES	Spatial: Sub-regional Temporal: Annual: breeding success from sub-samples Every six years: adult and immature survival	Temporal: Annual Spatial: National or sub-national Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies Temporal: Annual: breeding success Every six years: adult and immature survival

3	Mediterranean Shag <i>Gulosus aristotelis desmarestii</i>	CI3: Species Distributional Range	Distribution of breeding colonies, and separately, distribution during non-breeding (July roosts)	Reference-based baseline for breeding and non-breeding population separately: Widest known range in the last 20 years, except a major and reversible decline in the range is known to have taken place before	Not more than 10% deviation from baseline, (potentially re- evaluated at higher threshold due to potentially strong fluctuations between years, alternatively: 10% deviation between averages)	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National Temporal: Annual where feasible and depending on scale, alternatively one time to two times within six years, linked to MSFD reporting cycle
		CI 4: Population abundance	For breeding birds: Annual relative breeding bird abundance For non-breeding birds: Annual relative non-breeding bird abundance	Reference-based (modern) baseline: Highest breeding and non-breeding abundance estimates in the last 20 years	Deviation from baseline: Annual relative breeding and non-breeding abundance > 0.7	Spatial: Regional and sub-regional Temporal: Every six-years	Spatial: Breeding population: National or sub-national (at least 40% of the national breeding population and certainly no less than 10% of the national population) Non-breeding population: sub-national: relevant, representative sites during mid-winter counts Temporal: Annual
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success of monitored nests (alternatively count of fledglings pre- dispersal to reduce disturbance) Adult survival rates from capture-mark- resighting of monitored nests (colour-ringing of breeding adults) Immature survival rates from capture-mark- resighting (via colour ringing of chicks), additionally by ratio adult vs first year birds at roosts (July counts).	Model-based baseline: Population growth rates in the last assessment cycle	Deviation from baseline: Population growth rate of at least 1.0	Spatial: Regional and sub-regional Temporal: Every six year: adult and immature survival Annual: reproductive success	Spatial: National or sub-national Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies Relevant, representative sites for mid-winter counts Temporal: Annual

4	Audouin's Gull <i>Ichthyaeus audouinii</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding birds. % Shift in occupancy	Maximum range of breeding colonies as measured in the last 20 years, alternatively since implementation of the BD (1981)	Not more than 10% deviation from baseline	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National, surveys covering all known (major) breeding colonies per country Temporal: Annual highly recommended! (where not feasible 1 to 2 times within a 6 years reporting cycle)
		CI 4: Population abundance	For breeding birds in colonies: Annual relative breeding bird abundance For non-breeding birds during coastal mid-winter roost counts and at bottleneck during post-breeding/ post fledging migration (Gibraltar Strait): Annual relative non-breeding bird abundance	Reference-based (modern) baseline: Highest breeding and non-breeding abundance estimates in the last 20 years	Deviation from baseline: annual relative breeding and non-breeding abundance > 0.7	Spatial: Regional and sub-regional Temporal: Annual with reporting every six-years	Spatial: Breeding population: National or sub-national, all (larger) colonies Non-breeding population: sub-national, all known roost sites during mid- winter, bottleneck during outbound migration Temporal: Annual
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success of monitored colonies or subsamples Post-fledging, immature and adult survival rates modelled from capture-mark- resighting of birds colour-ringed as chicks in colonies Ratio of first winter versus adult birds from counts at bottleneck and mid- winter roosts for cross-assessment of reproductive output	Model-based population growth rate	Population growth rate 1.0 or higher	Spatial: Sub-regional Temporal: Annual: breeding success, immature and adult survival rates with reporting every six years	Spatial: National or sub-national Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies All-important mid-winter roosts per country for ratio of adult versus 1st winter birds and reading of colour ringed individuals bottleneck (Gibraltar Strait) for ratio of adult versus 1st year during outbound migration Temporal: Annual for breeding success, adult and immature survival

5	Slender-billed Gull <i>Chroicocephalus genei</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding birds. % Shift in occupancy	Average range of breeding colonies as measured in the last 20 years, alternatively since implementation of the BD (1980)	Not more than 10% deviation from baseline	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National, surveys covering all known (major) breeding colonies per country Temporal: Annual if feasible, alternatively 1 to 2 times within a 6 years reporting cycle
		CI 4: Population abundance	For breeding birds in colonies: Annual relative breeding bird abundance For non-breeding birds during coastal mid-winter roost counts and at roosting areas during post-breeding. Annual relative non-breeding bird abundance	Reference-based (modern) baseline: Average breeding and non-breeding abundance estimates in the last 20 years	Deviation from baseline: Annual relative breeding and non-breeding abundance > 0.7	Spatial: Regional and sub-regional Temporal: Annual with reporting every six-years	Spatial: Breeding population: National or sub-national, all (larger) colonies Non-breeding population: sub-national, all known roost sites during mid-winter Temporal: Annual
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success of monitored colonies or subsamples Post-fledging, immature and adult survival rates modelled from capture-mark-resighting of birds colour-ringed as chicks in colonies Ratio of first winter versus adult birds from counts at bottleneck and mid-winter roosts for cross-assessment of reproductive output	Model-based population growth rate	Population growth rate 1.0 or higher	Spatial: Sub-regional Temporal: Annual: breeding success, immature and adult survival rates with reporting every six years	Spatial: National or sub-national Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies All-important mid-winter roosts per country for ratio of adult versus 1st winter birds and reading of colour ringed individuals Temporal: Annual for breeding success, adult and immature survival

6	Lesser- crested Tern <i>Thalasseus bengalensis emigratus</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding birds. % Shift in occupancy	Maximum range of breeding colonies as measured in the last 20 years	Not more than 10% deviation from baseline, set as a preliminary value, potentially to be set lower due to restricted range	Spatial: Sub-regional Temporal: Every six years	Annual for breeding success, adult and immature survival
		CI 4: Population abundance	For breeding birds in colonies: Annual relative breeding bird abundance For non-breeding birds during coastal mid-winter roost counts and at bottleneck during post-breeding/ post fledging migration (Gibraltar Strait) Annual relative non-breeding bird abundance	Reference-based (modern) baseline: Highest breeding and non-breeding abundance estimates in the last 20 years	Deviation from baseline: annual relative breeding and non-breeding abundance > 0.7	Spatial: Regional and sub-regional Temporal: Annual with reporting every six-years	Spatial: Breeding population: National or sub-national, all (larger) colonies Non-breeding population: sub-national, all known roost sites during mid- winter, bottleneck during outbound migration Temporal: Annual
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success of monitored colonies or subsamples Post-fledging, immature and adult survival rates modelled from capture-mark- resighting of birds colour-ringed as chicks in colonies Ratio of first winter versus adult birds from counts at bottleneck and mid- winter roosts for cross-assessment of reproductive output if feasible	Model-based population growth rate	Population growth rate 1.0 or higher	Spatial: Sub-regional, national (Libya) Temporal: Annual: breeding success, immature and adult survival rates with reporting every six years	Spatial: National or sub- national All colonies Representative subsample of nests/ chicks from these sample colonies All mid-winter aggregations per country for ratio of adult versus 1st winter birds and reading of colour ringed individuals bottleneck (Gibraltar Strait) for ratio of adult versus 1st year during outbound migration Temporal: Annual for breeding success, adult and immature survival, alternatively, breeding success every second year to reduce disturbance

7	Sandwich Tern <i>Thalasseus sandvicensis</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding and wintering birds % Shift in occupancy for breeding and wintering population	Maximum range of breeding colonies as measured in the last 20 years	Not more than 10% deviation from baseline	Spatial: Sub-regional Temporal: Every six years	Spatial: National Temporal: Annual where feasible and depending on scale, alternatively one time to two times within six years, linked to EcAp reporting cycles
		CI 4: Population abundance	Relative abundance for breeding and wintering birds	Reference-based (modern) baseline: Highest breeding and non-breeding abundance estimates in the last 20 years	Annual relative abundance > 0.7	Sub-regional Annual where feasible, with reporting every six- years	Sub-national: Breeding: high- and low-pressure areas > sample of nests Wintering: selection of high- and low-pressure areas or all known areas Temporal: annual
		CI5: Population Demographic Characteristics	Population growth rate _{SEP} Reproductive success of monitored colonies or subsamples Post-fledging, immature and adult survival rates modelled from capture-mark-resighting of birds colour-ringed as chicks in colonies Ratio of first winter versus adult birds from counts at mid-winter roosts for cross-assessment of reproductive output if feasible	Model-based population growth rate	Population growth rate 1.0 or higher	Spatial: Regional, Sub-regional Temporal: Annual: breeding success, immature and adult survival rates with reporting every six years	Spatial: National or sub-national Temporal: Annual for breeding success, adult and immature survival, alternatively, breeding success every second year to reduce disturbance

8	Mediterranean Storm- petrel <i>Hydrobates pelagicus melitensis</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding birds. % Shift in occupancy	Reference-based baseline: Widest known range in the last 20 years, except a major and reversible decline in the range is known to have taken place before	Not more than 10% deviation from baseline	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National Temporal: Annual where feasible and depending on scale, alternatively one time to two times within six years, linked to EcAp reporting cycles
		CI 4: Population abundance	Annual relative breeding bird abundance	Reference-based (modern) baseline: Highest breeding abundance estimate in the last 20 years	Deviation from baseline: Relative annual abundance > 0.8	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National or sub-national (at least 40% of the national population and certainly no less than 10% of the national population, according to suggestions by UNEP/IMAP (2017)) Temporal: every 3 to 6 years
		CI5: Population Demographic Characteristics	Population growth rate: Adult survival rates from capture-mark-recapture of monitored colonies	Model-based baseline: Average population growth rates if available in the last 6 to 12 years	Average growth rate of at least 1.0	Spatial: Regional and sub-regional Temporal: Aiming at annual monitoring and assessment with reporting every six years	Spatial: National or sub-national, representative subsamples Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies Temporal: Annual

9	Scopoli's Shearwater <i>Calonectris diomedea</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding birds. % Shift in occupancy	Reference-based baseline: Widest known range in the last 20 years, except a major and reversible decline in the range is known to have taken place before	Not more than 10% deviation from baseline	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National Temporal: Annual where feasible and depending on scale, alternatively one time to two times within six years, linked to EcAp reporting cycles
		CI 4: Population abundance	Annual relative breeding bird abundance supported by or substituted with raft counts where deemed suitable, following the confirmation of connectivity of rafts with certain colonies by means of GPS-tracking	Reference-based (modern) baseline: Abundance at the start of the implementation of BD (1980): needs to be discussed Highest breeding abundance estimate in the last 20 years	Deviation from baseline: Relative annual abundance > 0.8	Spatial: Regional or sub-regional Temporal: Aiming at annual monitoring and assessment with reporting every six	Spatial: National or sub-national (at least 40% of the national population and certainly no less than 10% of the national population, according to suggestions by UNEP/IMAP (2017)) Temporal: Annual
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success of monitored nests Adult survival rates from capture-mark-recapture of monitored nests	Model-based approach: Population growth rates over one assessment and reporting cycle	Population growth rate of at least 1.0	Spatial: Regional Temporal: Annual	Spatial: National or sub-national Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies Temporal: Annual

10	Yelkouan Shearwater <i>Puffinus yelkouan</i>	CI3: Species Distributional Range	% Change in occupancy in distribution range of breeding birds. % Shift in occupancy	Reference-based baseline: Widest known range in the last 20 years, except a major and reversible decline in the range is known to have taken place before	Not more than 10% deviation from baseline	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National Temporal: Annual where feasible and depending on scale, alternatively one time to two times within six years, linked to EcAp reporting cycles
		CI 4: Population abundance	Annual relative breeding bird abundance by combination of methods including CMR in colonies; supported by land-based passage counts in the evening, combined with telemetry were deemed suitable	Reference-based (modern) baseline: Highest breeding abundance estimate in the last 20 years	Deviation from baseline: annual relative breeding abundance > 0.9	Spatial: Regional and sub-regional Temporal: Every six years	Spatial: National Temporal: Annual where feasible and depending on scale, alternatively one time to two times within six years, linked to EcAp reporting cycles
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success of monitored nests Adult survival rates from capture-mark-recapture of monitored nests	Model-based approach: Population growth rates over one assessment and reporting cycle	Population growth rate of at least 1.0	Spatial: Regional and sub-regional Temporal: Annual	Spatial: National or sub-national Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies Temporal: Annual

11	Balearic Shearwater <i>Puffinus mauretanicus</i>	CI3: Species Distributional Range	Distributional pattern: % change in occupancy in distribution range of breeding birds Distributional pattern: % change in at-sea distribution (50% KDE), modelled from representative number of tracked individuals and/or transect line counts % Shift in occupancy	Reference-based 'modern' baseline: Due to unfavorable conservation status (CR): maximum ranges (at sea and regarding breeding colonies) e.g. since start of the implementation of BD (1980)	No negative deviation in range size between assessment cycles due to precarious conservation status. Maximum 10% in range shift between assessment cycles	Spatial: Sub-regional (Balearic islands for breeding, Western Mediterranean Sea (mainly) for at-sea distribution during breeding (relevant OSPAR sub-region during non-breeding) Temporal: Every six years	For breeding range: Balearic Islands, covering at least all known breeding areas Temporal: Annual
		CI 4: Population abundance	Annual relative breeding bird abundance Annual count net maxima of individuals passing bottleneck on migration	Reference-based (modern) baseline: Highest breeding abundance estimate in the last 20 years	Deviation from baseline: annual relative breeding abundance annual relative breeding abundance 1.0 or larger	Spatial: Regional (Western Mediterranean Sea) Temporal: Aiming at annual monitoring and assessment with reporting every six years	Spatial: Sub-national (ideally 100% but at least 90% of the population) Temporal: Annual
		CI5: Population Demographic Characteristics	Population growth rate Reproductive success Adult survival rates from capture-mark-recapture of monitored nests	Model-based approach: Population growth rates over one assessment and reporting cycle	Population growth rate 1.0 or higher	Spatial: sub-regional Temporal: Annual with reporting every six years	Spatial: Sub-national Representative sample of colonies from high pressure vs protected areas Representative subsample of nests from these sample colonies Temporal: Annual

PART VI: Monitoring and Assessment Scales, Assessment Criteria, Thresholds and Baseline Values for the IMAP Common Indicators 6 related to Non-Indigenous Species (NIS)

Assessment Criteria	Assessment criteria for preparing validated check lists of NIS to be used for assessing GES include a) taxa (all taxa or excluding phytoplankton, parasites); b) species to be considered in trends indicator (extinct species, cryptogenic species, crypto-expanding, questionable species); c) pathways to be considered (all pathways or excluding unaided expanding species, e.g. Lessepsian immigrants). Partly native species, NIS introduced through natural dispersal, unicellular marine algae, parasites, extinct and freshwater species should be reported in NIS lists but considered in CI6 assessments on a case-by-case basis.
Spatial and Temporal Scales of Monitoring and Assessment	Broad Geographic Units: Assessment of threshold values based on the trends indicator (CI6) calculated to date can be achieved at the basin and country level, although it is more meaningful to be assessed at the subregional level (i.e. EcAp subregional units) and, accordingly, at the national part of a subregion for each country, e.g. Greece: EMED, CMED, ADRIA; Italy: WMED, CMED, ADRIA, Tunisia: WMED, CMED. Broad Temporal Scales: For consistency and harmonization reasons, it is recommended that the assessment period of CI6 should be the same across all Mediterranean countries and follow the assessment and reporting 6-year periods already established for EU countries under the MSFD.
Finer scales for NIS monitoring	At basin scale, there are no established standard protocols for the monitoring of NIS. However, guidelines for monitoring NIS in the Mediterranean were developed and endorsed by the CPs to the Barcelona Convention in 2019 under the framework of the EcAp/IMAP (UNEP/MED WG.467/16 (2019) “Monitoring Protocols for IMAP Common Indicators related to Biodiversity and Non-Indigenous species”). The majority of countries do not have a dedicated strategy but have a monitoring strategy including marine NIS applied either at hot-spot areas of the country (i.e. ports, aquaculture units, marine protected areas) or in specific subregions through a related network of sampling stations. Targets of NIS monitoring include mainly the detection of new NIS and the measurement of abundance/coverage/biomass of established and/or invasive NIS, while only a small number of countries monitor the impact of established/invasive NIS on the native communities. The IMAP Common Indicator Guidance propose more intense monitoring effort at “hot-spots” and “steppingstone areas” for non-indigenous species introductions, e.g. sampling at least once a year at ports and their wider area and once every two years in smaller harbours, marinas, and aquaculture sites. Importantly, the same sites should be surveyed each monitoring period, to avoid biases potentially caused by differences among sites.
Threshold Values	Currently, threshold values for the number of new introductions of non-indigenous species have not been set neither at the EU or the Mediterranean level. Ongoing work in the framework of the MSFD (Tsiamis et al., 2021b) has concluded that the most suitable approach for setting threshold values for D2C1 is to adopt the percentage reduction of new NIS and the exact value of percentage reduction should be decided at regional and/or subregional scale, based on the pathways pressure and level of monitoring coverage of each region/subregion. Preliminary analysis of the available data for the Mediterranean between 1970-2017 for the purposes of this report demonstrated that there is a significant increase in the rate of new NIS entering all EcAp subregions after 2000 (presumably as a result of increased scientific effort) and that this parameter is significantly different between EcAp subregions. Consequently, the initial recommendations are that i) the threshold values for CI6 in the Mediterranean need to be set at subregional level and not at regional level and ii) we need to consider data only after 2000s in order to establish today's threshold values. Furthermore, for Mediterranean region/subregions that have not been efficiently monitored in terms of NIS during the previous decades, a shorter time span of 6-years cycle periods should be preferred, e.g. 3 years. Conclusively, threshold values should be established separately for each of the Mediterranean subregions and should be sought by examining the data of the last two decades, if not an even more recent time period. At the same time, a consensus needs to be reached about which species groups will be included in the calculations and how their environmental impact will be taken into account. These are decisions that will determine the definition of GES for EO2 and will affect the management obligations of Contracting Parties to the Barcelona Convention. As such, it is proposed that further work takes into account the

	contribution of regional experts not only from the fields of taxonomy, monitoring and assessment but also conservation and management and last, but not least, ecologists with strong statistical/mathematical background
Baseline	The regional baseline (i.e., UNEP/MED WG.521/Inf.8) includes only validated species records observed up to the end of 2020, harmonizing regional and subregional inventories and updating national lists (including the JRC baselines for EU Mediterranean countries). A total of 1,011 non-indigenous species (NIS) have been recorded in Mediterranean marine waters, of which 748 are considered established—an overall establishment rate of nearly 74%, varying by subregion. These include 144 Macrophytes, 224 Mollusca, 188 Arthropoda, 203 Chordata, 83 Annelida, 33 Bryozoa, 42 Cnidaria, 47 Foraminifera, and 47 other taxa. Alien status and record validity have been clarified for most species. Where information was lacking, data-deficient and questionable records were compiled at regional and subregional levels.

Appendix 2

IMAP Assessment Criteria for Nutrients, Contaminants and Marine Litter⁴³

⁴³ The Assessment Criteria for Nutrients, Contaminants and Marine Litter (except for Common Indicator 24) have been approved by COP23 ([Decision IG.23/3, Annex II](#))

Appendix 2: IMAP Assessment Criteria for Nutrients, Contaminants and Marine Litter

PART I: Pollution (IMAP EO5 and EO9)

1. The assessment criteria for Common Indicators 13 and 14⁴⁴

Table 1. Major coastal water types in the Mediterranean

	Type I	Type II-A, II-A Adriatic	Type III-W	Type III-E	Type Island-W
σ _t (density)	<25	25<d<27	>27	>27	All ranges
S (salinity)	<34.5	34.5<S<37.5	>37.5	>37.5	All ranges

Notes: (i) With the view to assess eutrophication, the classification scheme on Chl *a* concentration (in µg/l) is optimal in coastal waters as a parameter easily applicable by all Mediterranean countries based on the indicative thresholds and reference values presented in Table 3. (ii) The major coastal water types are also indicative of the part of offshore waters next to coastal waters; however, it should be used with caution in the offshore (open) areas.

Table 2. Coastal water types reference conditions and boundary values in the Mediterranean, along with the new and updated values for coastal and open (offshore) waters in the Adriatic Sea Sub-region⁴⁵. (Reference conditions and boundary (Good/Moderate status) values, expressed as *G* mean annual values, are based on long time series (>5 years) of monthly sampling at least, which differ from type to type on the sub-regional scale, and therefore, were built with different strategies).

Water Typology	Coastal waters					
	Reference conditions of <i>c</i> (Chl <i>a</i>) (µg/L)		Boundaries of <i>c</i> (Chl <i>a</i>) (µg/L) for G/M status		Reference conditions of <i>c</i> (TP) (µmol/L)	Boundaries of <i>c</i> (TP) (µmol/L) for G/M status
	<i>G</i> mean	90% percentile	<i>G</i> mean	90% percentile		
Type I	1.19 ⁴⁶	3.33 ^b	4.1 ⁴⁶	10		
Type I Adriatic	1.40	3.94	5.0 ^a	14.1	0.19 ^a	0.55 ^a
Type II-A-FR-SP ^d	0.78 ⁴⁶	1.9	1.48 ⁴⁶	3.50 ⁴⁷	-	-
Type II-A Adriatic	0.33	0.87	1.5	4.0	0.16 ^a	0.48 ^a
Type II-A ^e Tyrrhenian	0.32	0.77	1.2	2.9	-	-
Type III-W Adriatic ^c	-	-	0.64 ^f	1.7 ^f	-	0.26
Type III-W Tyrrhenian	-	-	0.48	1.17	-	-
Type III-W-FR-SP	0.37 ⁴⁶	0.9	0.74 ⁴⁶	1.89 ⁴⁸	-	-
Type III-E		0.1		0.4		
Type Island-W		0.6		1.2-1.22		

Water Typology	Open (offshore) waters in the Adriatic Sea Sub-region					
	Reference conditions of <i>c</i> (Chl <i>a</i>) (µg/L)		Boundaries of <i>c</i> (Chl <i>a</i>) (µg/L) for G/M status		Reference conditions of <i>c</i> (DIN) (µmol/L)	Boundaries of <i>c</i> (DIN) (µmol/L) for G/M status
	<i>G</i> mean	90 % percentile	<i>G</i> mean	90 % percentile		
Type I Adriatic	0.15 ^g ; 0.29 ^h	0.42 ^f ; 0.81 ^g	3.1	8.7	0.21 ^g ; 0.66 ^h	22.3

⁴⁴ For ease of reference, the Secretariat included the values as approved by Decisions IG.22/7 (COP 19) and IG. 23/6 (COP 20) which are shown in shaded cells.

⁴⁵ The new values are calculated based on data as available by December 2022.

⁴⁶ Gmean values corresponding to the reference and boundary values of Chl*a* (expressed as the 90th percentile) are provided for Type II A FR SP and Type III W FR SP, along with the corrected calculation of Gmean value for Type I, compared to those included in Decisions IG.22/7 and IG.26/3, shown in blue shaded cells.

⁴⁷ The value of 3.58 µg/L is corrected to 3.50 µg/L for Type II A FR SP in comparison to the values provided in Decision IG.22/7 on Integrated Monitoring and Assessment Programme of the Mediterranean Sea and Coast and Related Assessment Criteria (COP 19, 2016) and Decision IG.26/3 on 2023 MED QSR and a Renewed Ecosystem Approach Policy in the Mediterranean (COP 23, 2023), following the identification of an error by the Joint Meeting of CorMon on Pollution and Marine Litter Monitoring held on 27–28 May 2025 in relation to the boundary values used in the 2023 MED QSR.

⁴⁸ The value of 1.80 µg/L is corrected to 1.89 µg/L for type III W FR SP in comparison to the values provided in Decisions IG.22/7 and Decision IG.26/3, following the identification of an error by the Joint Meeting of CorMon on Pollution and Marine Litter Monitoring held on 27–28 May 2025 in relation to the boundary values used in the 2023 MED QSR.

Type II-A Adriatic	0.11	0.29	-	-	-	-
Type III-W Adriatic ^c	-	-	0.64	1.7	-	-

^a From Giovanardi et al, 2018

^b Applicable to Gulf of Lion Type I coastal waters

^c The ecological classification scheme would not be suitable for proper and safe classification, and therefore the boundary values for WT III-W Adriatic waters are based on the H/G values for WT II-A Adriatic in coastal waters i.e. 0.64 µg/L for Chla and 0,26 µmol/L for TP

^d Correction of error included to ensure consistency with the classification as provided in Commission Decision 2013/480/EU i.e. Type II -FR-SP, as included in Decision IG.22/7, replaced with Type II -A-FR-SP

^e Correction of error included to ensure consistency with the classification as provided in Commission Decision 2013/480/EU i.e., Type II-A Tyrrhenian replaced Type II-B Tyrrhenian, as included in Decision IG.22/7, since the latter does not exist in the Tyrrhenian Sea

^f values based on the H/G values for WT II-A^c The ecological classification scheme would not be suitable for proper and safe classification, and therefore the boundary values for WT III-W Adriatic waters are based on the H/G values for WT II-A Adriatic in coastal waters i.e. 0.64 µg/L for Chla and 0,26 µmol/L for TP

^g for ME; ^h for HR, IT

^h No pressure – effect relationship was found, and therefore RC for DIN and boundary G/M values for Chla and DIN could not be proposed.

2. The assessment criteria for IMAP Common Indicator 17⁴⁹⁵⁰

2.1 The BC and BAC values for IMAP Common Indicator 17

Table 3. The BC and BAC values for trace metals in sediments. The units of concentration are given in µg/kg dry wt, as requested by IMAP.

The BC and BAC values for trace metals in sediments					
The BC values in sediments, µg/kg dry wt					
TM	MED	WMS	ADR	CEN	AEL
Cd	107	140	120	#	78.9
Hg	50.0	90.0	50.0	#	31.5
Pb	15000	16000	15700	1805	15674
The BAC values in sediments, (µg/kg dry wt)					
	Med	WMS	ADR	CEN	AEL
Cd	161	210	180	#	118
Hg	75.0	135	75.0	#	47.3
Pb	22500	24000	23550	2708	23511
#All data points for Cd are BDL as well as 72% of the Hg data points.					

⁴⁹ For ease of reference, the Secretariat included the values as approved by Decisions IG.22/7 OF (COP 19) and IG. 23/6 (COP 20) which are shown in shaded cells.

⁵⁰ The new values are calculated based on data as available by December 2022.

Table 4. The BC and BAC values for Polycyclic Aromatic Hydrocarbons (PAHs) in sediments. The units of concentration are given in µg/kg dry wt, as requested by IMAP.

The BC and BAC values for Polycyclic Aromatic Hydrocarbons (PAHs) in sediments					
PAH compounds	The BC values in sediments, µg/kg dry wt				
	MED	WMS	ADR	CEN	AEL
Naphthalene	2.00	8.0	2.0	#	2.3
Acenaphthylene	(1.0) [#]	#	#	0.4	#
Acenaphthene	(2.0) [#]	#	#	*	#
Fluorene	(2.0) [#]	#	#	0.4	#
Phenanthrene	3.10	14.9	3.5	0.8	3.1
Anthracene	(2.2) [#]	#	#	#	#
Fluoranthene	5.00	#	7.0	0.1	2.7
Pyrene	6.20	24.8	8.0	0.4	3.0
Benzo[a]anthracene	3.38	19.7	4.1	*	1.8
Chrysene	2.70	35.9	4.6	1.6	1.6
Benzo(b)fluoranthene	5.00	8.7	15.0	*	2.6
Benzo(k)fluoranthene	4.00	#	3.0	*	#
Benzo[a]pyrene	(4.0) [#]	#	4.0	#	1.0
Benzo[g,h,i]perylene	(4.2) [#]	#	5.7	*	1.8
Dibenz[a,h]anthracene	(1.0) [#]	7.0	#	*	#
Indeno[1,2,3-c,d]pyrene	(4.0) [#]	#	4.4	*	2.1
Sum PAHs	27.4	160	41.0	6.3	21.4
PAH compounds	The BAC values in sediments, µg/kg dry wt				
	MED	WMS	ADR	CEN	AEL
Naphthalene	3.0	12.0	3.0	#	3.5
Acenaphthylene	(1.5) [#]	#	#	0.6	#
Acenaphthene	(3.0) [#]	#	#	*	#
Fluorene	(3.0) [#]	#	#	0.5	#
Phenanthrene	4.7	22.4	5.3	1.2	4.7
Anthracene	(3.3) [#]	#	#	#	#
Fluoranthene	7.5	#	10.5	0.2	4.1
Pyrene	9.3	37.1	12.0	0.6	4.5
Benzo[a]anthracene	5.1	29.6	6.2	*	2.7
Chrysene	4.0	53.9	6.9	2.4	2.4
Benzo(b)fluoranthene	7.5	13.0	22.5	*	3.8
Benzo(k)fluoranthene	6.0	#	4.5	*	#
Benzo[a]pyrene	(6.0) [#]	#	6.0	#	1.5
Benzo[g,h,i]perylene	(6.3) [#]	#	8.6	*	2.7
Dibenz[a,h]anthracene	(1.5) [#]	10.5	#	*	#
Indeno[1,2,3-c,d]pyrene	(6.0) [#]	15.0	6.5	*	3.2
Sum PAHs	41.0	240	61.5	9.5	32.0

#most data (>50%) below detection limit, * no data reported

Table 5. The BC and BAC values for trace metals in mussel (*M. galloprovincialis*) and fish (*M. barbatus*) . The units of concentration are given as requested by IMAP.

The BC and BAC values for trace metals in mussel soft tissue (<i>M. galloprovincialis</i>), µg /kg dry wt					
The BC values					
TM	MED	WMS	ADR	CEN	AEL
Cd	710	1030	629	*	942 ^{>}
Hg	77.9	85.0	75.4	*	110 ^{>}
Pb	1100	1260	1000	*	2300 ^{>}
The BAC values					
TM	MED	WMS	ADR	CEN	AEL
Cd	1065	1545	944	*	1413 ^{>}
Hg	117	128	113	*	165 ^{>}
Pb	1650	1890	1500	*	3450 ^{>}

* Only a few data points were available for the CEN. The calculated BCs were lower than in other sub-regions, however, the few data are not representative of the CEN.

> Since new data were not available in the AEL to update BC/BAC values for *M. galloprovincialis*, it was approved to use the values calculated in 2019.

The BC and BAC values for trace metals in fish muscle (<i>Mullus barbatus</i>), µg/kg wet wt					
The BC values					
TM	MED	WMS	ADR	CEN	AEL
Cd	3.9	*	5.3	*	3.6
Hg	40.6	*	120	*	33.7
Pb	18.3	*	40.8	*	13.5
BAC values					
	MED	WMS	ADR	CEN	AEL
Cd	7.8	*	10.6	*	7.2
Hg	81.2	*	240	*	67.4
Pb	36.6	*	81.6	*	27.0

* Given the lack of data, it was not possible to propose values for BC in these sub-regions, therefore it was approved to use the regional MED BC values for the GES assessment

Table 6. The BC and BAC values for Polycyclic Aromatic Hydrocarbons (PAHs) in mussel (*M. galloprovincialis*). The unit of concentration is given in µg/kg dry wt, as requested by IMAP. No data were available for the CEN and the AEL Sub-regions.

The BC and BAC values for Polycyclic Aromatic Hydrocarbons (PAHs) in mussel (<i>M. galloprovincialis</i>), µg/kg dry wt			
BC values			
	MED	WMS	ADR
Naphthalene	0.56	0.52	#
Acenaphthylene	(0.05) [#]	#	#
Acenaphthene	(0.50) [#]	#	#
Fluorene	2.50	7.87	#
Phenanthrene	5.35	19.9	2.25
Anthracene	1.12	0.94	#
Fluoranthene	4.83	10.0	#
Pyrene	2.50	5.54	#
Benzo[a]anthracene	0.60	0.69	#
Chrysene	2.54	2.98	#
Benzo(b)fluoranthene	1.00	1.36	#
Benzo(k)fluoranthene	1.00	0.73	#
Benzo[a]pyrene	(1.00) [#]	0.94	#
Benzo[g,h,i]perylene	1.00	0.67	#
Dibenz[a,h]anthracene	(0.10) [#]	#	#
Indeno[1,2,3-c,d]pyrene	(0.63) [#]	0.29	#
Sum 16 PAHs ⁵¹	5.80	5.60	6.60
The BAC values			
	MED	WMS	ADR
Naphthalene	0.84	0.79	#
Acenaphthylene	(0.08) [#]	#	#
Acenaphthene	(0.75) [#]	#	#
Fluorene	3.75	11.8	#
Phenanthrene	8.03	29.8	3.38
Anthracene	1.68	1.40	#
Fluoranthene	7.25	15.0	#
Pyrene	3.75	8.31	#
Benzo[a]anthracene	0.90	1.04	#
Chrysene	3.81	4.46	#
Benzo(b)fluoranthene	1.50	2.04	#
Benzo(k)fluoranthene	1.50	1.09	#
Benzo[a]pyrene	(1.50) [#]	1.42	#
Benzo[g,h,i]perylene	1.50	1.01	#
Dibenz[a,h]anthracene	(0.14) [#]	#	#
Indeno[1,2,3-c,d]pyrene	(0.94) [#]	0.43	#
Sum 16 PAHs	8.70	8.40	9.90

[#]most data (>50%) below detection limit;

⁵¹ Data dictionary gives 2 additional categories: Sum 4 PAHs Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene) and Sum 5 PAHs (Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene, Indeno(1,2,3-cd)pyrene). It is suggested that they be considered for use in the future data reporting.

Table 7. The BAC values for organochlorinated contaminants (PCBs and pesticides) in sediments and mussel (*M. galloprovincialis*). The unit of concentrations is given in µg/kg dry wt, as requested by IMAP. For sediments, very limited data were available for the CEN sub-region, while for biota no data were available for the CEN and AEL sub-regions. When most (>50%) of the data points were below the detection limit for the sub-regions, BACs were not calculated.

The BAC values for organochlorinated contaminants (PCBs and pesticides) in sediments and mussel (<i>M. galloprovincialis</i>)					
SEDIMENTS, µg/kg dry wt	MED	WMS	ADR	CEN	AEL
PCBs					
PCB28	0.10	#	#	#	0.09
PCB52	0.07	0.10	0.09	#	0.04
PCB101	0.10	0.16	0.16	*	#
PCB118	0.10	0.46	0.18	#	0.01
PCB138	0.11	0.26	0.24	#	#
PCB153	0.14	0.40	0.28	#	0.02
PCB180	0.09	0.13	0.13	#	#
Sum 7 PCBs	0.40	1.60	0.21	#	0.19
Pesticides					
γ-HCH (Lindane)	(0.1) [#]	#	#	*	0.02
DDE(p,p')	(0.1) [#]	0.23	#	#	*
Hexachlorobenzene	(0.1) [#]	#	#	#	*
Dieldrin	(0) [#]		#	#	#
BIOTA – MG, µg/kg dry wt	MED	WMS	ADR	CEN	AEL
PCBs					
PCB28	0.20	0.07	1.38	*	*
PCB52	0.38	0.3	0.5	*	*
PCB101	1.20	1.1	1.4	*	*
PCB118	1.23	1.5	1.4	*	*
PCB138	2.31	2.4	3.3	*	*
PCB153	3.45	4.6	4.6	*	*
PCB180	0.50	0.3	0.5	*	*
Sum 7 PCBs	18.4	28.6	17.3	*	*
Pesticides					
γ-HCH (Lindane)	(1.0) [#]	#	#	*	*
DDE(p,p')	3.05	3.05	*	*	*
Hexachlorobenzene	(0.5) [#]	#	#	*	*
Dieldrin	(1.0) [#]	#	*	*	*

most data (>50%) below detection limit. * no data reported

2.2 The Environmental Assessment Criteria (EAC) values for IMAP CI 17

Table 8. The Mediterranean EAC values for trace metals in sediments and biota, as endorsed by Decision IG.23/6

The Mediterranean EAC values for trace metals in sediments and biota			
TM	MedEAC*	#MedEAC	#MedEAC
	Sediments, µg/kg dry wt	<i>M. galloprovincialis</i> , µg/kg dry wt	<i>Mullus barbatus</i> , µg/kg wet wt
	IG.23/6	IG.23/6	IG.23/6
Cd	1200	5000	50
Hg	150	2500&	1000
Pb	46700	7500	300

* Med EAC values equal to ERL (Effects Range Low, Long et al. 1995, idem OSPAR values). # Med EAC values equal to the maximum regulatory levels for contaminants in foodstuffs as provided in EC/EU 1881/2006 and 629/2008 Directives & Not included in EU directives, but adopted by OSPAR

Table 9. The Mediterranean EAC values for Polycyclic Aromatic Hydrocarbons (PAHs) in sediments and biota, as endorsed by Decisions IG.23/6 and IG.22/7, along with a few updated values to ensure consistency with ERL Long et al., and OSPAR EAC values

The Mediterranean EAC values for Polycyclic Aromatic Hydrocarbons (PAHs) in sediments and biota				
PAH compounds	Sediments, µg/kg dw		Biota Mussels, µg/kg dw	
	EAC* IG.22/7 and IG.23/6 - OSPAR and ERLs	ERL Long et al, 1995 [#]	EAC** IG.22/7 and IG.23/6 - OSPAR	OSPAR [#]
Naphthalene		160		340
Acenaphthylene		44		
Acenaphthene		16		
Fluorene		19		
Phenanthrene	240		1700	
Anthracene	85		290	
Fluoranthene	600		110	
Pyrene	660		100	
Benzo[a]anthracene	261		80	
Chrysene	384			
Benzo(b)fluoranthene				
Benzo(k)fluoranthene			260	
Benzo[a]pyrene	430		600	
Benzo[g,h,i]perylene	85		110	
Dibenz[a,h]anthracene		63.4		
Indeno[1,2,3-c,d]pyrene	240			
Sum 16 PAHs		4022		

* Med EAC values equal to ERL (Effects Range Low, Long et al. 1995, idem OSPAR values)

** Med EAC values equal to OSPAR values

[#] Med EAC values equal to ERL (Effects Range Low, Long et al., 1995) which were not included in Decisions IG.22/7 and IG.23/6.

Table 10. The Mediterranean EAC values for organochlorinated contaminants (PCBs and pesticides) in sediments and biota, as endorsed by Decisions IG.23/6 and IG.22/7 along with the one updated value.

The Mediterranean EAC values for organochlorinated contaminants (PCBs and pesticides) in sediments and biota					
PCBs	Sediments			Mussel	Fish
	EAC [#] IG.22/7 (µg/kg dry wt) – updated	EAC* IG.22/7 (µg/kg dry wt)	EAC** IG.23/6 (µg/kg dry wt)	EAC** IG.22/7 and IG.23/6 (µg/kg dry wt)	EAC** IG.22/7 and IG.23/6 (µg/kg lipid)
CB28			1.7	3.2	64
CB52			2.7	5.4	108
CB101			3	6	120
CB118			0.6	1.2	24
CB138			7.9	15.8	316
CB153			40	80	1600
CB180			12	24	480
Sum 7 PCBs	67,9				
Pesticides					
γ-HCH (Lindane)		3		1.45	11 µg/kg ww
DDE(p,p')		2.2		5-50	
Hexachlorobenzene		20			
Dieldrin		2		5-50	

* ERL (Effects Range Low, (Long et al., 1995) or used by OSPAR (2009)

** From OSPAR (2009)

#The EAC value of 11.5 µg/kg dry wt in Decision IG 22/7 originated probably from Long et al, 1995 as explained in document UNEP/MED 427/Inf.3. However, Long et al.,1995 present the ERL value of 22.7 µg/kg dry wt for Total PCBs in sediments but do not specify which congeners were considered. Moreover, OSPAR has not adopted an EAC value for the sum of 7 PCBs in sediments. Therefore, further to experience related to the preparation of the assessments within the 2023 MED QSR, the EAC value of 67,9 is included to present the sum of 7 individual IMAP PCB congeners.

3. The Environmental Assessment Criteria (EAC) values for IMAP CI 18⁵²

Table 11. The Mediterranean BACs and EACs for biomarkers in mussel (*M. galloprovincialis*) as endorsed by Decisions IG.22/7 and IG.23/6.

The Mediterranean BACs and EACs for biomarkers in mussel (<i>M. galloprovincialis</i>)				
Biomarkers/Bioassays and units	BACs IG.23/6 in Mussels (<i>Mytilus galloprovincialis</i>)	EACs IG.23/6 in Mussels (<i>Mytilus galloprovincialis</i>)	BACs IG.22/7 in Mussels (<i>Mytilus galloprovincialis</i>)	EACs IG.22/7 in Mussels (<i>Mytilus galloprovincialis</i>)
Lysosomal membrane stability Neutral Red Retention Assay (minutes)			120 ^{a*}	50 ^{a*}
Lysosomal membrane stability Cytochemical method (minutes)			20 ^{a*}	10 ^{a*}
AChE activity (nmol min ⁻¹ mg ⁻¹ protein) in gills (French Mediterranean waters)			29	20
AChE activity (nmol min ⁻¹ mg ⁻¹ protein) in gills (Spanish Mediterranean waters)			15	10
Stress on Stress (days)	11	5		
Metallothioneins (µg/g digestive gland)	247			
Micronuclei frequency (number of cases /1000 cells) in haemocytes	1			

^aTechnical annex: assessment criteria for biological effects measurements. Integrated monitoring of chemicals and their effects. ICES Cooperative Research Report No. 315. Davies, I.M. and Vethaak, A.D.Eds.

*Moore et al., 2006 (Standard values adopted by ICES)

⁵² For ease of reference, the Secretariat included the values as approved by Decisions IG.22/7 of (COP 19) and IG.23/6 (COP 20) which are shown in shaded cells.

4. The Environmental Assessment Criteria (EAC) related to IMAP Common Indicator 20

Table 12. The Mediterranean EACs values for CI 20 related to trace metals based on the maximum regulatory levels for trace metals in foodstuffs for the protection of human health, as provided in EC/EU Directives 1881/2006 and its amendments 488/2014 and 1005/2015. The concentrations are presented in mg/kg wet wt.

The EAC CI 20 for trace metals- EU 1881/2006 directive and its amendments 488/2014 and 1005/2015			
matrix	TM, mg/kg wet wt		
	Cd	Hg	Pb
fish muscle	0.05-0.25	0.5-1	0.3
cephalopods	1		1
crustaceans	0.5	0.5	0.5
bivalve mollusc	1		1.5

Table 13. The Mediterranean EAC values for IMAP CI 20 related to Benzo(a)pyrene and sum of four PAHs based on the maximum regulatory levels for these contaminants in foodstuffs for the protection of human health, as provided in EC/EU EC Regulations 835/2011 and 1259/2011 amending Regulation (EC) 1881/2006. The concentrations are presented in µg/kg wet wt.

The EACs values for CI 20 related to Benzo(a)pyrene and sum of four PAHs (benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene and chrysene) - EC Regulation (EC) 1881/2006 and amendments 835/2011 and 1259/2011		
Matrix	Maximum levels (µg kg ⁻¹ wet wt)	
	Benzo(a) pyrene	Sum of Benzo(a) pyrene, Benzo(a) anthracene, Benzo(a) fluoranthene and chrysene
Smoked fish muscle	2-5	12-30
Smoked bivalve mollusc	6	35
Bivalve mollusk (fresh, chilled or frozen)	5	30

Table 14. The Mediterranean EAC values for CI 20 related to Dioxins and PCBs based on the maximum regulatory levels for these contaminants in foodstuffs for the protection of human health, as provided in EC/EU EC Regulation 1259/2011 amending EC Regulation 1881/2006. The concentrations are presented in wet wt.

The EACs values for CI 20 related to Dioxins and PCBs – EC Regulation 1259/2011 amending EC Regulation 1881/2006			
Foodstuffs	Maximum levels		
	Sum of dioxins (WHO-PCDD/F-TEQ) ⁽¹⁾ pg g ⁻¹ ww	Sum of dioxins and dioxin-like PCBs (WHO-PCDD/F-PCB-TEQ) ⁽¹⁾ pg g ⁻¹ ww	Sum of PCB28, PCB52, PCB101, PCB138, PCB153 and PCB180 (ICES 6) ng g ⁻¹ ww
Fish muscle	3.5	6.5	75
Fish liver	3.5	20	200
Eel muscle	3.5	10	300

- (1) Dioxins (sum of polychlorinated dibenzo-para-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), expressed as World Health Organisation (WHO) toxic equivalent using the WHO-toxic equivalency factors (WHO-TEFs)) and sum of dioxins and dioxin-like PCBs (sum of PCDDs, PCDFs and polychlorinated biphenyls (PCBs), expressed as WHO toxic equivalent using the WHO-TEFs). WHO-TEFs for human risk assessment based on the conclusions of the World Health Organization (WHO) (For TEF values see note 31, (EC) Regulation 1259/2011 – Annex 1.1.9.). Where fish are intended to be eaten whole, the maximum level shall apply to the whole fish.

PART II: Marine Litter (IMAP – EO10)⁵³**5. Baseline Values (BV) and Threshold Values (TV) for IMAP Common Indicator 22****Table 15:** Baseline Values and Threshold Values for IMAP Common Indicator 22 (i.e., beach macrolitter).

IMAP Indicator	Categories of Marine Litter	Baseline Values (BV – 2021)	Threshold Value (TV – 2021)
Common Indicator 22	Beach Macro-litter	369 items/100m	130 items/100m

6. Baseline Values (BV) and Threshold Values (TV) for IMAP Common Indicator 23**Table 16.** Baseline Values and Threshold Values for IMAP Common Indicator 23 (i.e., seafloor macrolitter, floating microplastic).

IMAP Indicator	Categories of Marine Litter	Baseline Values (BV – 2023)	Threshold Value (TV – 2023)
Common Indicator 23	Seafloor Macro-litter	135 items/km ²	38 items/km ²
Common Indicator 23	Floating Microplastics	0.044338 items/m ²	0.000845 items/m ²

7. Baseline Values (BV) and Threshold Values (TV) for IMAP Common Indicator 24⁵⁴**Table 17.** Updated Baseline Values (BV) and Threshold Values (TV) for IMAP Common Indicator 24 (i.e., for ingestion and entanglement on *Caretta caretta*).

IMAP Common Indicator 24	Updated BV (2025)	Proposed TV (2025)
Common Indicator24: Ingestion	0.07 gr dry weight ML ingested ⁵⁵	0.01 gr dry weight ML ingested
Common Indicator24: Entanglement	35% affected sample	9% affected sample

8. Environmental Targets for Marine Litter**Table 18.** Intermediate (IET) and Final (FET) Environmental Targets for IMAP EO10 Marine Litter Common Indicators.

IMAP Common Indicator (CI)	Marine Litter Categories	Threshold Value	ML Average Concentrations*	IET 2026	IET 2028	IET 2030	FET		
							Value	by:	RP**
CI22 (item/100m)	Beach Macrolitter	130	6,425±9,075	150	-	-	130	Approx. 2027	65%
CI23 (item/km ²)	Seafloor Macrolitter	38	570± 2,588	66	58	50	38	> 2030	63%
CI23 (item/m ²)	Floating Microplastics	0.000845	0.36 ± 1.9	0.015	0.010	0.008	0.000845	> 2030	80%

⁵³ Threshold Values (TV) for IMAP EO10 (Marine Litter) are subject to update for the third iteration of the MED QSR.⁵⁴ Values for ingestion and entanglement were revised further to the review of the Joint Meeting of the Ecosystem Approach Correspondence Groups on Pollution and Marine Litter Monitoring (Anavyssos, Greece, 27 -28 May 2025). The detailed elaboration and applied methodology with regards to the updated values is provided in WG.627/Inf.10.