

Decision IG.27/11**Marine Pollution from Ships: Revision of the Terms of Reference of the Mediterranean Network of Law Enforcement Officials relating to MARPOL in the Mediterranean Sea (MENELAS) and Roadmap for Transitioning to Low Carbon Shipping in the Mediterranean Sea**

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

Welcoming the outcome document of the 2025 United Nations Ocean Conference (UNOC-3) 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 UNEP/Mediterranean Action Plan and the 30 years of the Post-Rio Barcelona Convention, in UNOC-3, on 10 June 2025, as a strong sign of renewed commitment of the Contracting Parties, as reflected in their Ministerial Declaration,

Noting with appreciation Resolution 6/15 adopted by the United Nations Environment Assembly on 1 March 2024, on strengthening ocean efforts to tackle climate change, marine biodiversity loss and pollution,

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

Recalling Article 6 and Article 12 of the Barcelona Convention and Article 6 of the Protocol concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (Prevention and Emergency Protocol),

Recalling also Decision IG.21/9 of the 18th Meeting of Contracting Parties (COP18, Istanbul, Türkiye, December 2013), by which the Mediterranean Network of Law Enforcement Officials relating to MARPOL in the Mediterranean Sea (MENELAS) was formally established with the aim of facilitating cooperation among law enforcement officials in the region to ensure effective implementation and enforcement of the MARPOL Convention,

Recognizing the continued relevance and necessity of MENELAS in supporting regional efforts to combat illicit ship-source pollution and to enhance compliance with international and regional maritime environmental obligations,

Acknowledging the evolving nature of operational challenges, technological developments, and legal frameworks related to the detection, investigation, and prosecution of violations of MARPOL provisions in the Mediterranean Sea,

Taking into account the outcomes and recommendations of the MENELAS meetings held under the auspices of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), as well as the evaluation of the implementation of the MENELAS Terms of Reference,

Appreciating the support provided by REMPEC as the Secretariat of MENELAS and its efforts in fostering cooperation, capacity-building, and information exchange among Contracting Parties,

Recalling further Decision IG.25/16 of the 22nd Meeting of Contracting Parties (COP 22, Antalya, Türkiye, 7-10 December 2021) on the Mediterranean Strategy for the Prevention of, Preparedness, and Response to Marine Pollution from Ships (2022–2031),

Noting with appreciation the outcomes of the 16th Meeting of the Focal Points of REMPEC, held in Malta from 13 to 15 May 2025, which endorsed the “Roadmap for Transitioning to Low Carbon Shipping in the Mediterranean Sea”,

Welcoming the adoption by the International Maritime Organization (IMO) of the 2023 IMO Strategy on Reduction of GHG Emissions from Ships, including its targets towards achieving net-zero GHG emissions from international shipping close to 2050,

Recognizing the critical role of the Mediterranean region in global maritime transport and the particular vulnerability of the Mediterranean Sea to climate change impacts,

Acknowledging the urgent need for coordinated action at regional level to support the low carbon transition of the maritime sector, reduce air pollution from ships, and contribute to global efforts to address climate change,

Affirming the commitment of the Contracting Parties to support the transition to low-carbon and energy-efficient shipping through the full and timely implementation of MARPOL Annex VI and other relevant international instruments,

1. *Adopt* the revised Terms of Reference of MENELAS, set out in Annex I to the present Decision, superseding the Terms of Reference approved by Decision IG.21/9;
2. *Mandate* REMPEC, as the Secretariat of MENELAS, to facilitate the implementation of the revised Terms of Reference and to continue providing support to the Network, including through the organization of regular meetings, coordination of joint activities, and maintenance of the MENELAS information system;
3. *Encourage* all Contracting Parties to actively participate in MENELAS and to designate appropriate national focal points and law enforcement officials to contribute to the work of the Network;
4. *Invite* Contracting Parties to provide financial and in-kind support for the effective functioning of MENELAS, including for the implementation of joint operational activities and capacity-building initiatives;
5. *Request* the Secretariat (REMPEC) to report on the progress of MENELAS implementation and the application of its revised Terms of Reference to the meetings of the MAP Focal Points and to future Meetings of the Contracting Parties;
6. *Adopt* the “Roadmap for Transitioning to Low Carbon Shipping in the Mediterranean Sea” set out in Annex II to the present Decision and as endorsed by the 16th Meeting of the Focal Points of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC);
7. *Urge* the Contracting Parties to take the necessary measures, at the national and regional levels, for the effective and coordinated implementation of the Roadmap, in line with the objectives and priorities of the Mediterranean Strategy for the Prevention of, Preparedness, and Response to Marine Pollution from Ships (2022–2031);
8. *Request* the Secretariat (REMPEC), in cooperation with the relevant MAP Components and in consultation with the International Maritime Organization (IMO), to provide technical support to Contracting Parties, upon their request, for the implementation of the Roadmap, including capacity-building, knowledge-sharing, and transfer of environmentally sound maritime technologies;
9. *Request* the Secretariat (REMPEC) to coordinate and monitor the implementation of the Roadmap, and to integrate relevant activities into its biennial Programme of Work, in line with its mandate;
10. *Encourage* the Contracting Parties to report on the implementation of the Roadmap through existing mechanisms under the Barcelona Convention and its Protocols, including through the Barcelona Convention Reporting System and relevant REMPEC reporting processes;
11. *Invite* relevant regional and international organisations, financial institutions and stakeholders, including the private sector, to support the implementation of the Roadmap through technical assistance, capacity-building, resource mobilisation, and promotion of innovative and environmentally sound maritime technologies;

12. *Request* the Secretariat (REMPEC) to report on the implementation of the “Roadmap for Transitioning to Low Carbon Shipping in the Mediterranean Sea”, including progress made, challenges encountered, and recommendations for further action, for consideration by the Meetings of the REMPEC Focal Points and subsequent Meetings of the Contracting Parties.

ANNEX I

Revised Terms of the Mediterranean Network of Law Enforcement Officials relating to MARPOL within the framework of the Barcelona Convention (MENELAS)

**Revised Terms of the Mediterranean Network of Law Enforcement Officials relating to
MARPOL within the framework of the Barcelona Convention
(MENELAS)**

Background

1. The Mediterranean Network of Law Enforcement Officials relating to MARPOL (MENELAS) is a network of representatives of all Contracting Parties to the Barcelona Convention.
2. The function of MENELAS is to enhance enforcement and prosecution of MARPOL maritime pollution offences aiming to prevent and minimize pollution from ships and installations in the Mediterranean Sea.
3. MENELAS was set up in 2013 through Decision IG.21/9 adopted during the 18th Meeting of the Contracting Parties to the Barcelona Convention to fulfill their commitment to “*take all necessary measures to make the Mediterranean a clean, healthy, and productive sea with conserved biodiversity and ecosystems (...)*”

By ensuring, in view of the predicted increase in maritime traffic, the continuous strengthening of capacities and resources to prevent and respond to marine pollution used by shipping, in particular through judicial and operational cooperation”.

Composition

4. Each Contracting Party should nominate a Designated Representative (DR) with professional experience in MARPOL related violations. The DR should be a person who has experience in investigations in case of casualties in terms of the MARPOL Convention and/or investigation bodies established at national level in case of illegal discharges and prosecution of MARPOL violations.
5. It is the duty of the DR to:
 - a. disseminate the information received through MENELAS to the concerned national competent authorities (e.g.: coast guard function, port State control, customs, jurisdictions, prosecutor office, etc...);
 - b. forward any request formulated within these Terms of Reference received from another MENELAS member to the appropriate entity or individual in a position to answer the query;
 - c. update the country page of their country on the MENELAS website.

Scope of work

6. In accordance with article 6 of the Barcelona Convention and article 3 of its Prevention and Emergency Protocol, the overall objective of MENELAS is to facilitate cooperation between its members in order to improve the enforcement of the international regulations regarding discharges at sea from ships as laid down in the MARPOL Convention. Accordingly, its scope of work includes:
 - a. providing a strong regional platform whereby investigators and prosecutors work together with a view to identifying features, such as detection and investigation which lead to effective enforcement and ways of handling pollution offences from ships in a transboundary context, in accordance with international regulations regarding discharges at sea as laid down in the MARPOL Convention;

- b. enhancing information exchange of best practices and the results of the judicial proceedings on all MARPOL Annexes;
- c. maintaining a database with enforcement cases on all MARPOL Annexes;
- d. preparing and updating a Manual on Pollution Offences to support the detection of pollution offences, the collection of evidence, and the imposition of penalties;
- e. assisting in exchanging information and experience with entities whose work contributes to an effective enforcement of MARPOL regulations (MoU on Port State Control) which could be invited to participate on an ad hoc basis to the meetings of MENELAS;
- f. assisting members by addressing their needs for training or in facilitating the adoption of harmonized procedures or documents;
- g. while availing of the resources available within the network, assisting with the peer review of the legal and procedural framework in place in a requesting country which will be beneficial not only to the requesting country but will also assist in familiarizing the participating countries with the legal framework in place in the requesting country;
- h. considering the provision of technical ad hoc training according to the identified needs, including but not limited to reporting methodology, aerial observation and reporting of oil slicks, and investigation techniques on board a suspected ship;
- i. cooperating and facilitating the technical exchange of experience with other similar regional networks; and
- j. facilitating the organization of regular coordinated control operations, such as the OSCAR MED (Opération de Surveillance Coordonnée Aérienne des Rejets en Méditerranée).

7. MENELAS whose scope of work, relies on the high responsiveness of its members, shall not replace the official national or international procedures which have to be strictly adhered to in order to successfully conclude violation cases. In that sense MENELAS should act as a precursor to such official requests. Bearing in mind the limited time window during which elements of evidence of a possible violation could be gathered, it is important that the highest level of reactivity is ensured through the network.

Operation and organization of work

8. MENELAS shall hold at least a biannual meeting, provided that, should the need arise, the Chair may request for an extraordinary meeting in the biennium, and provided further that working groups established by MENELAS may carry out duties intersessionally.

9. MENELAS shall maintain a List of Actions for small and short-term tasks to be completed within a meeting cycle, taking especially into account national initiatives or proposals.

10. MENELAS shall consider, discuss and endorse any technical document to be used by the network which has been prepared by the working groups.

11. MENELAS shall elect a Chair and a Vice-Chair in accordance with the terms stipulated in paragraph 15.

12. MENELAS shall report to the REMPEC Focal Points Meeting.
13. MENELAS shall ensure there is exchange of information in both directions with other Governing and Subsidiary Bodies of the Barcelona Convention, as required.

MENELAS Information System

14. To ensure prompt reactivity in accordance with paragraph 6, there shall be available direct access to a list of 24/7 contact points in the MENELAS members. The list shall be regularly disseminated to the 24/7 contact points and be available on the restricted area of the MENELAS information system.
15. REMPEC shall be responsible for the updating of the MENELAS information system.
16. This information system will be an online tool comprising of two main parts:
 - a. a public one where general information will be made available to the public in order to raise awareness on the problem of illicit discharges from ships at sea, the aim of the network, its participating and associate members, its activities and achievements. The public part may also contain an analytic database of the legislative framework and procedural requirements in each participating country related to the prosecution of illicit discharges offenders. Statistical data should be also available.
 - b. a restricted area used for participating members only, where any request for assistance could be posted. Besides this secured communication link, this area shall also contain relevant information on 24/7 contact points, past cases analysis in order to highlight elements of success or failure, “tips” for investigators such as illustrations of specific techniques/devices found during on board investigations, which could facilitate the identification of similar practices. The restricted area shall also contain the database referred to in paragraph 6(c).

Election of Chair and Vice-Chair

17. Pursuant to paragraph 11, MENELAS shall elect among its members a Chair and Vice-Chair who shall hold office for a term of two years. They shall both be eligible for re-election for up to three further consecutive terms of office. In exceptional circumstances they may be re-elected for one additional consecutive term of office.
18. The Chair and Vice-Chair shall be elected at the end of the last regular session in a calendar year and shall assume their functions at the beginning of the following calendar year.
19. The Chair and Vice-Chair shall not hail from the same country.
20. Member countries shall submit to REMPEC, which provides the necessary Secretariat support to MENELAS, communication containing the nomination of their candidate for the position of Chair and Vice-Chair.
21. REMPEC shall share with all members the information regarding nominated candidates for these positions, as and when received.
22. The information regarding nominated candidates shall include a brief summary of the reasons behind such nomination and a curriculum vitae of the nominated candidate.
23. If the Chair is absent from a session, or any part thereof, the Vice-Chair shall preside. If the Chair, for any reason, is unable to complete the term of office, the Vice-Chair shall act as Chair pending the

election of a new Chair.

24. The provisional agenda for each meeting of MENELAS shall be prepared by the Secretariat in consultation with the Chair and Vice-Chair. Such an agenda shall be communicated to all members at least two months prior to the meeting.

25. The Chair may declare a meeting open and permit debate to proceed when at least 25% of the members are present, either physically or virtually. The presence of at least 40% of the members shall be required for any decision to be taken.

26. The Chair shall declare the opening and closing of each meeting, direct the discussion and ensure the observance of these terms of reference. The Chair shall accord the right to speak, put questions to vote, and announce decisions resulting from voting.

27. The Chair, or the Vice-Chair acting as Chair, shall not vote.

28. The Chair shall also chair and coordinate any inter-sessional work that will be agreed upon by MENELAS.

ANNEX II

Roadmap for Transitioning to Low Carbon Shipping in the Mediterranean Sea

**ROADMAP FOR TRANSITIONING TO LOW CARBON SHIPPING IN THE
MEDITERRANEAN SEA**

1 INTRODUCTION AND CONTEXT

1. The 2013 report² from the International Panel on Climate Change (IPCC) highlights the Mediterranean as one of the most vulnerable regions in the world to the impacts of global warming. The 2019 Report on the State of the Environment and Development in the Mediterranean (SoED)³ concludes that the Mediterranean basin is affected by climate change at a pace well above global average, in particular, by more rapid warming of ambient air and sea surface in all seasons. Through the application of the Coastal Risk Index⁴ (CRI-MED) for the Mediterranean (on 21 Mediterranean countries), coastal hot-spots are found to be predominantly located in the south-eastern Mediterranean region. The Mediterranean Sea is one of the busiest seas in the world, with 24% of the global fleet of ships calling ports or passing through the Mediterranean in 2019, including container ships, gas tankers and oil and chemical tankers representing 36.5%, 32.6%, and 27% of the world fleet, respectively.

2. Moreover, the Mediterranean is the second largest market globally (after the Caribbean) for cruising, accounting for 17.3% of worldwide cruises in 2019. Container port traffic development also shows a clear trend of rapid growth of the sector, which undoubtedly increases the environmental pressure and strengthens the need for a transition to a sustainable maritime sector. Furthermore, maritime traffic is steadily increasing adding environmental pressures, including rising CO₂ emissions.



Density map of ship traffic in the Mediterranean Sea, 2017 (source: www.researchgate.net)

3. Shipping contributes to 2.89% of global GHG emissions (IMO, 2020)⁵. As the regulatory body for international shipping, the International Maritime Organisation (IMO) is committed to reducing air emissions from the industry. The 2023 IMO GHG Strategy marks a significant milestone in the industry's transition towards zero-emission shipping by approximately 2050. Achieving this target requires a holistic, systematic, and transdisciplinary approach, incorporating a mix of strategies and active collaboration among stakeholders.

4. Adopting and enforcing appropriate regulations are crucial for the decarbonisation of the maritime industry. The IMO is working on adopting regulations for implementing the 2023 IMO GHG Strategy including GHG pricing to incentivise the transition to carbon-neutral energy and zero-emission technologies. Against this background, the EU has already introduced the ambitious “Fit for 55” package aiming for a 55% reduction in GHG emission by 2030 across all industrial sectors including a cap and trade system extended to shipping.

5. The unique characteristics and specificities of the Mediterranean region influence the shift to net-zero emission shipping. Economic and policy disparities between the Mediterranean coastal States that are EU Member States and those that are not EU Member States create challenges for adopting a unified strategy for net zero-emission shipping in the Mediterranean region. Furthermore, geopolitical instability in the Mediterranean region or adjacent regions, obstructs efforts to establish a coordinated approach to the transition. While the region's renewable energy resources hold significant potential to transform it into a green energy hub, working towards resolving geopolitical issues is essential to attract investors and

drive economic growth through job creation. The Mediterranean's strategic importance as a global trade and energy corridor enhances its potential to become a leading energy hub and a pivotal player in the energy transition. However, trying to overcome geopolitical instability and adopting a cohesive approach to maritime industry decarbonization are crucial for realizing this potential.

2 GEOGRAPHICAL COVERAGE

2.1 The area to which the Roadmap applies is the area defined in Article 2 of the Protocol concerning Cooperation in preventing pollution from ships and, in cases of emergency, combatting pollution of the Mediterranean Sea.

3 PRESERVATION OF RIGHTS

3.1 The provisions of the Roadmap shall be without prejudice to stricter provisions regulating the management of GHG emissions from ships contained in other existing or future national, regional or international instruments or programmes, when considering existing best practices for addressing GHG emissions from ships in the Mediterranean region.

4 GUIDING PRINCIPLES

4.1 The Roadmap will be guided by:

- .1 the work of the Contracting Parties to the Barcelona Convention, wherever possible towards achieving the UN 2030 Agenda for sustainable development and delivering on the SDGs (especially SDG 5 - Gender Equality, SDG 13 - Climate Action, and SDG 14 – Life Below Water) and the Good Environmental Status (GES) of the Mediterranean Sea and Coast, particularly the ecological objectives related to non-indigenous species (EO2), contaminants (EO9), and marine litter (EO10);
- .2 the initiatives taken by the Contracting Parties to the Barcelona Convention towards achieving Objective 4 – addressing climate change as a priority within the context of the Mediterranean Strategy for Sustainable Development (MSSD)⁶, in its updated version;
- .3 the collaboration with all stakeholders of the Mediterranean region, with a specific focus on IMO and, as appropriate on EU, related regulatory instruments and institutions, with a view to encouraging more cohesive working, maximizing synergies and benefits for the Contracting Parties and effectiveness and enhancing impacts on the ground;
- .4 the knowledge gained from the studies conducted and the guidelines developed on GHG emissions from ships by REMPEC as well as the achievements and lessons learnt through the implementation of the regional Mediterranean Strategy for Prevention, Preparedness and Response to Marine Pollution from Ships 2022-2031⁷;
- .5 the prevention and precautionary principles approach when planning and undertaking activities to deliver the objectives of the Roadmap;
- .6 the Ecosystem Approach (EcAp) to the management of human activities in the Mediterranean marine and coastal environment;
- .7 the regional and sub-regional initiatives between countries to tackle GHG emissions from ships in the Mediterranean region where possible;

.8 the cooperation among relevant organisations and stakeholders operating within the Mediterranean to maximise synergies, wherever possible, and impacts on the ground, and encourage more cohesive and effective working;

.9 the work to promote gender equality and the empowerment of women within the maritime sector; and

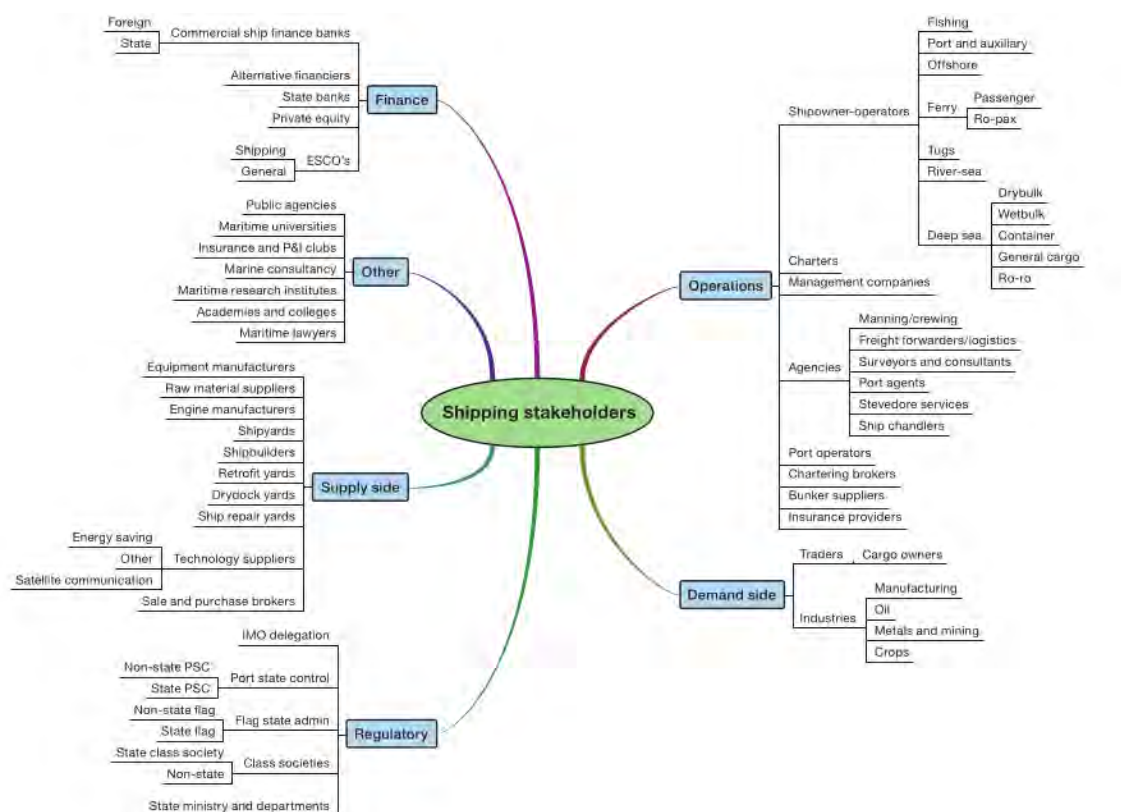
.10 the innovative solutions, wherever possible, to address the objectives of the Roadmap within the framework of any initiatives taken by IMO and UNEP/MAP.

5 APPLICATION

5.1 This Roadmap will address GHG emissions from ships and from the ship-shore interface, as appropriate in compliance with legal regulations aimed at contributing to net-zero greenhouse gas emissions from ships and controlling greenhouse gas emissions from ships, in conformity with international law, under the aegis of United Nations specialized agencies, and in particular of the IMO, including but not limited to the international conventions dealing with maritime safety, notably the International Convention for the Safety of life at Sea, 1974 (SOLAS) and the prevention of pollution from ships, notably the International Convention for the Prevention of Pollution from Ships (MARPOL) and specifically its Annex VI, and the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention).

6 STAKEHOLDERS

6.1 It is well recognized that addressing the reduction of GHG emissions from ships at national level is linked to various Ministries, Government agencies or other institutions can be responsible for, or impacted by, national legislation to reduce GHG emissions from ships.



6.2 At national level, it is important to identify which maritime sectors and stakeholders are expected to play a role in the reduction of GHG emissions from ships. That said, the 2023 IMO GHG Strategy identifies a level of ambition whereby the “*uptake of zero or near-zero GHG emission technologies, fuels and/or energy sources to represent at least 5%, striving for 10%, of the energy used by international shipping by 2030*”. This and climate action by the European Union (EU), of which some Contracting Parties are also members, will increasingly impact maritime transport in the Mediterranean region as a whole and so there is an urgent need for Contracting Parties to the Barcelona Convention to consider the challenges and opportunities from a regional perspective.

6.3 The primary responsibility for achieving the objective of the Roadmap remains, in the main, with Contracting Parties to the Barcelona Convention. Thus, the primary stakeholders for the implementation of the Roadmap, are Contracting Parties to the Barcelona Convention who can act both individually and as a group.

6.4 However to support their individual and collective efforts there must be collaboration, coordination and collective efforts by all relevant stakeholders in the region. Considering the technical expertise required for the implementation of Roadmap in the framework of the Prevention and Emergency Protocol, REMPEC, supported by the Secretariat of the Barcelona Convention other MAP Components and other stakeholders will assist Contracting Parties to build consensus on various matters through the provision and coordination of technical support and providing a platform for regional or sub-regional cooperation.

7 OBJECTIVE OF THE MEDITERRANEAN ROADMAP AND ACTION PLAN

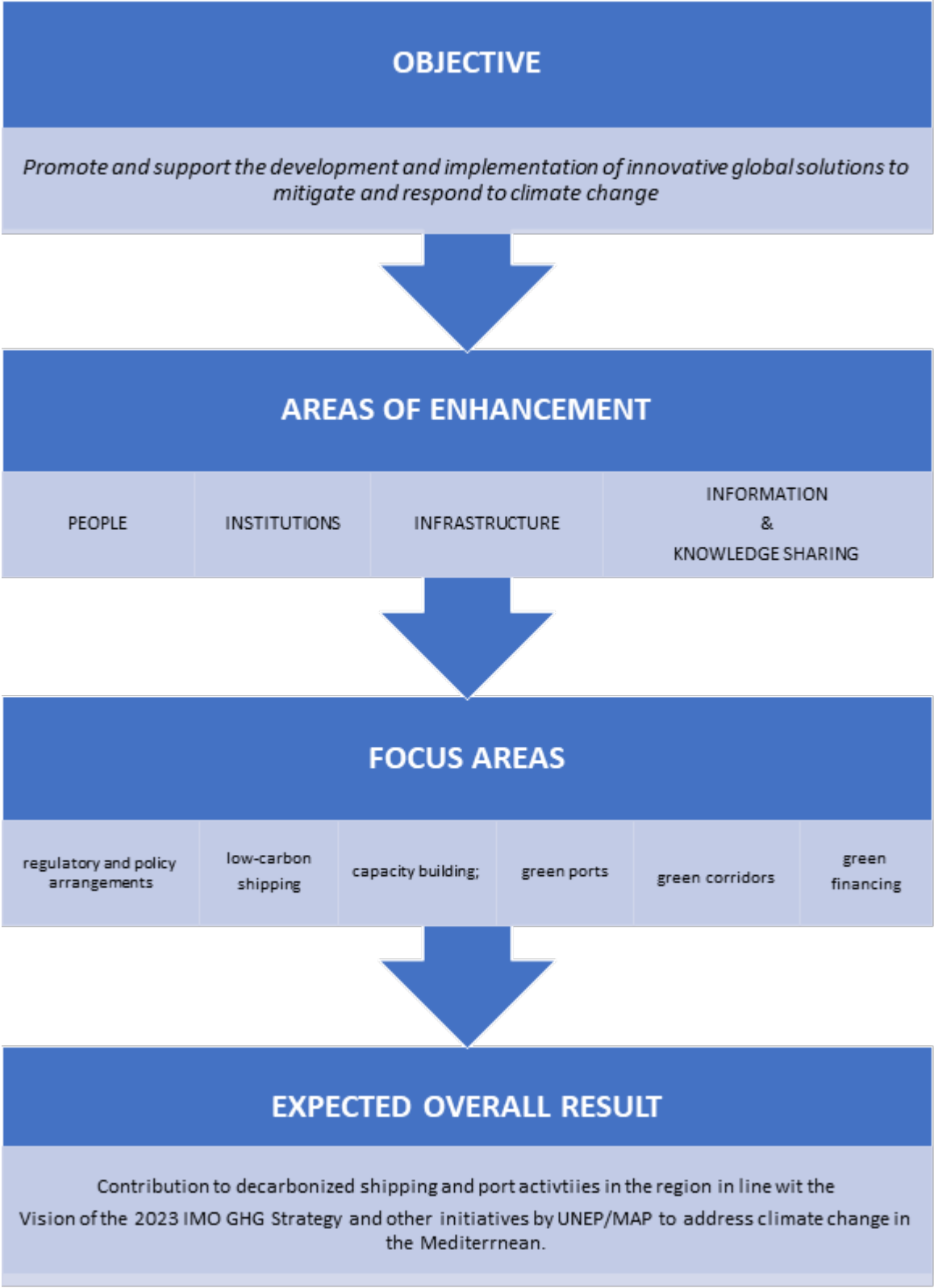
7.1 The Contracting Parties to the Barcelona Convention and its Protocols at their 22nd Meeting (COP 22, Antalya, Türkiye) adopted Decision 25/16 on the Mediterranean Strategy for the Prevention, Preparedness, and Response to Marine Pollution from Ships (2022-2031).

7.2 The Mediterranean Strategy (2022-2031) identifies seven key Common Strategic Objectives (CSOs) representing the central focus areas to guide action over the 10-year period. In particular, CSO 2 is aimed to:

“Promote and support the development and implementation of innovative global solutions to mitigate and respond to climate change”

7.3 The purpose of this Roadmap is to build on the experiences gained from the initiatives taken by Contracting Parties thus far to address GHG emissions from ships at the regional level and most importantly to reinforce, in a coordinated manner, the already established collaborative and collective efforts of Contracting Parties, who will build on what has already been achieved to address this CSO with a view that GHG emissions from ships and the ship-shore interface in the region are reduced and ultimately contribute to the level of ambition in the 2023 IMO GHG Strategy.

Figure 1: Roadmap flow chart



8 FOCUS AREAS OF THE ROADMAP

8.1 The Roadmap focuses on the following key areas:

Key Area 1: Regulatory and Policy arrangements

Background - MARPOL Annex VI, which regulates air pollution and GHG emissions from ships, is a critical instrument for mitigating maritime environmental impacts representing 97.3% of world merchant shipping tonnage. For Mediterranean coastal states, the region's 2022 designation as Sulphur Emission Control Areas (SO_x ECA) by IMO, effective from 1 May 2025, marks a transformative step. At the time of designation, 16 out of the 21 coastal States had acceded to MARPOL Annex VI. The Mediterranean SO_x ECA under MARPOL Annex VI targets SO_x but indirectly also supports GHG reduction.

Furthermore, biofouling on ship's hull significantly contributes to increase fuel consumption and GHG emissions from ships. Research suggests that a global approach to effective biofouling management through for example the International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFS Convention) could reduce shipping-related GHG emissions by up to 19% equivalent to 198 million tons of CO₂. Effective biofouling management can lead to significant energy savings and fuel demand of significant benefit to a busy shipping region like the Mediterranean Sea.

Thus, Mediterranean coastal States, ratifying and effectively implementing MARPOL Annex VI and the AFS Convention become essential in aligning with global and regional climate objectives and contributing to a cleaner Mediterranean.

While some Mediterranean coastal States have ratified MARPOL Annex VI and the AFS Convention and integrated the provisions into their national legal frameworks, other coastal states are in the process of doing so. Universal adoption followed by enforcement across the region is vital to ensuring a harmonized regulatory framework, ensuring a level playing field that does not discriminate against any flag or port state and promoting regional cooperation in emission reductions.

In addition to the IMO regulations on GHG reduction, in 2021, the European Union (EU) introduced the ambitious "Fit for 55" package aiming for a 55% reduction in greenhouse gas (GHG) emissions by 2030 across all industrial sectors, that will have a direct impact on the Mediterranean region. The shipping sector was subjected to four new regulations; 1) Emission Trading System (ETS) Directive which took effect in 2023 and was extended to maritime transport emission since 2024 2) FuelEU Maritime Regulation which took effect in 2025; 3) Alternative Fuels Infrastructure which is an update of an existing directive to ramp up the availability of LNG by 2025 and onshore electrical power supply in core EU ports by 2030; and 4) The revision of the Energy Taxation Directive with the aim to align the taxation of energy products with EU energy and climate policies is still under discussion. .

Recommendations:

- 1 accede to IMO instruments addressing the reduction of GHG emissions from ships including aspects of biofouling management, if not as yet done so;
- 2 transpose into national law the relevant regulations from IMO instruments concerning the reduction of GHG emissions from ships, and consider the development of regional or national policies on operational measures such as biofouling management, speed optimisation measures, technical measures supporting increased energy efficiency such as air lubrication, hull form optimisation, energy saving devices, wind propulsion assistance and environmentally friendly antifouling technologies and methods;
- 3 harmonize as appropriate, national regulations with the relevant IMO regulations addressing the reduction of GHG emissions from ships including aspects of biofouling management;

4 Consider to align national and regional policies, as appropriate, with emerging EU measures to drive cleaner fuels and low emission shipping;

5 ensure full compliance with the relevant IMO regulations addressing the reduction of GHG emissions from ships including aspects of biofouling management through adequate enforcement mechanisms.

Key Area 2: Low-carbon shipping

Background - The maritime industry has developed various zero/low-emission solutions, which are in different stages of development, tailored to vessel type, size and operational needs to meet the decarbonization goals set by the IMO. Options include battery-electric systems, hybrids, use of hydrogen, ammonia, LNG, biodiesel and biogas to replace the traditional fossil fuels, wind-assisted propulsion. Energy efficiency improvements – such as optimized ship design, operational (speed) management, proactive hull cleaning together with carbon capture onboard and upgraded logistics – are also critical for cutting emissions. Additionally, digital tools, automation and AI can improve weather-based route planning and streamline port operations, reducing ship-port stays and port emissions. Solutions would vary between existing ships and new builds.

Recommendations:

- 1 ensure that there is sufficient capacity and expertise in new solutions for green shipping including the development of legislation to facilitate a conducive environment for the take-up of zero and low-emission solutions for domestic ships;
- 2 ensure compliance with the IMO mandatory technical and operational energy efficiency requirements for ships;
- 3 encourage technical and operational strategies to minimize emissions while maintaining operational efficiency such as expanding the SO_x ECA to include NO_x and introducing voluntary slow steaming in specially protected areas with the framework of the SPA/BD Protocol;
- 4 offer tax incentives and subsidies for shipowners transitioning to zero-emission fuels;
- 5 support R&D for sustainable energy efficiency solutions by pooling resources from public and private stakeholders, support research on shipping energy efficiency, including on electric ships and wind propulsion assistance solutions, and develop data-driven tools for better management. Encourage scientific institutions and industry to identify key research areas, participate in R&D programmes, and share findings with coastal States;
- 6 engage with manufacturers and suppliers in coastal states to facilitate the import, installation and maintenances of low-emission ship technologies;
- 7 promote the use of smooth coating and alternative technologies for reducing hull friction;
- 8 conduct digitalisation projects for voyage optimization, fuel consumption tracking and predictive maintenance.

Key Area 3: Capacity building

Background - Transitioning to the use of low carbon fuel and net zero-emission shipping to achieve the goals of the 2023 IMO GHG Strategy requires transdisciplinary capacity building supplemented by raising awareness for collective action. Effective capacity building programmes for maritime personnel, port authorities and government officials aligned with IMO instruments addressing the reduction of

GHG emissions from ships, including IMO guidelines on zero emission shipping are key. Training must be systematic, addressing technical compliance with emission reduction technologies, operational best practices as well as legal and policy frameworks governing maritime decarbonization. Raising awareness to ensure all stakeholders understand the applicable regulatory frameworks in the region including the EU decarbonization initiatives and the urgency of transition to net zero-emissions from ships will indirectly reinforce the long-term risks on inaction.

Recommendations:

- 1 equip personnel with opportunities for knowledge on low-carbon shipping (green) technologies and on the relevant IMO instruments concerning the reduction of GHG emissions from ships;
- 2 build expertise in enforcing emissions regulations and implementing Port State Control (PSC) control measures;
- 3 establish regional centres of excellence on green shipping which can promote technologies and operations to improve energy efficiency and foster innovation through support to universities and research institutions building on the experience of IMO's MTCCs;
- 4 launch regional awareness campaigns, engaging industry leaders in the process to inform maritime professionals, shipowners and other stakeholders on the environmental impact of shipping emissions;
- 5 work with organizations such as IMO, EU, EBRD and other funding mechanisms to leverage funds and expertise for capacity building programmes and promote regional awareness.

Key Area 4: Green Ports

Background – Ports play an important role in reducing overall GHG emissions from ships. Various ports are in a phase of developing strategies to reduce emissions at the ship-port interface such as:

- .1 reducing emission from tugboats;
- .2 onshore power availability at berth;
- .3 cargo-operations-related emission reduction;
- .4 LED lighting; JIT arrival systems;
- .5 carbon capture, utilization and storage (CCUS); and
- .6 other measures to increase efficiency such as dynamic under-keel clearance, auto mooring, green fuel in trucks.

The use of low-emission fuels including the use of electrification to power vessel and hybrid vessels for short-sea shipping on ferries and onshore power supply (OPS) also known as “cold Ironing” are most likely the most common strategies to reduce GHG emissions from ships to date. Effective biofouling management can also lead to significant energy savings and emission reductions particularly beneficial to busy shipping lanes in the Mediterranean. These strategies do come with their own challenges for ports such as the availability of effective biofouling management and bunkering infrastructure for low-emission fuels as well as high energy demand for OPS from existing energy supply facilities in a country.

Recommendations:

- 1 promote the formal adoption of the IMO biofouling Guidance by Contracting Parties for intra-short captive shipping in the Mediterranean Sea;
- 2 promote In-Water Cleaning (IWC) facilities in targeted ports;
- 3 consider upgrading energy grid connections to support expanded electrification of port activities;

- 4 promote shore power (cold ironing) at major ports;
- 5 offer economic incentives across Mediterranean ports to reward low-carbon operations by shipowners in the form of “green rebates”;
- 6 create a unified Mediterranean Green Port programme that grants fee reductions or priority berthing to vessels using alternative fuels or achieving high environmental ratings;
- 7 establish and once established, expand alternative fuel infrastructure to develop a network of alternative fuel bunkering hubs in key Mediterranean ports at the same ensuring compatibility of refuelling facilities across the region.

Key Area 5: Green Corridors

Background – Upgrading the infrastructure of ports to reduce GHG emission at the ship-shore interface facilitates the designation of specific low-emissions shipping routes or green corridors where only zero or low emission ships can operate. Since green shipping corridors will require the supply of green energy at one or both ends or nearby ports, it can motivate the coordination of infrastructure development so that it is complementary and interoperable.

This has the potential to promote fuel hub ports each specializing (initially) in certain alternative fuels and connecting these hubs along shipping corridors. Since the launch of the Clydebank Declaration in 2021⁸, over 60 green shipping corridor initiatives have been announced, reflecting a significant increase from 21 in 2022 to more than 60 as of November 2024, including nearly 32 new corridors announced in 2023. Most remain in the feasibility study stage or are formulating implementation plans, while none have yet been fully operationalized in the Mediterranean region although multiple green corridors around the Mediterranean are in an advanced stage of being realized.

Initiating the implementation of green shipping corridors requires:

- .1 establishing the baselines for the three pillars i.e. ships, fuels used by ships and infrastructure supplying ships and identifying first movers’ opportunities;
- .2 engaging relevant key stakeholders i.e. cargo owners, shipowners, operators, regulators, port authorities and fuel producers; and
- .3 developing a holistic plan with timeline for all stakeholders. Subsequently, implementation would require securing investment in required infrastructure along the corridors.

Recommendations:

- 1 explore the possible establishment of port to port or sub-regional green corridors e.g. Western Mediterranean corridor connecting major ports.

Key Area 6: Green Financing

Background - The 2018 Initial IMO Strategy introduced “candidate mid- and long term measures” to further incentivise the reduction of GHG emissions from ships. Among these, market-based measures (MBMs) were identified as potential mid-term solutions. MBMs place a price on GHG emissions, creating an economic incentive for the maritime industry to reduce its fuel consumption by investing in more fuel-efficient ships, adopting advanced technologies and improving operational efficiency. Building on this, the 2023 IMO GHG Strategy reaffirmed the necessity of incorporating an economic element specifically through a maritime GHG emission pricing mechanism as part of a broader set of

candidate measures to achieve its reduction targets. The significance of such an economic element could be four-fold:

1. supporting the reduction of shipping's GHG emissions in alignment with the 2023 IMO GHG Strategy
2. encouraging the transition to low and net zero-carbon solutions;
3. potentially contributing to an international R & D fund for scalable low-and zero- carbon technologies; and
4. supporting developing countries in their climate action including both adaptation and mitigation efforts.

Against this backdrop, in 2005, the European Union Emissions Trading System (EU ETS) Directive established Emissions Trading System (EU ETS) Directive. It covers approximately 45% of the EU's GHG emissions. As of 1 January 2024, the EU ETS Directive has been extended to maritime transport emissions. This will have significant impact on the shipping sector of Mediterranean countries engaged in trading in the EU.

Meanwhile, Mediterranean EU Member states are actively implementing the EU ETS Directive whilst some non-EU Mediterranean countries are taking steps to develop their own carbon pricing scheme designed to align with the EU ETS. (e.g Türkiye).

Economic and policy disparities between Mediterranean coastal States that are EU member States and those that are not EU Member states can create challenges for adopting a unified position at regional level on a maritime GHG emission pricing mechanism.

Recommendations:

- 1 participate actively in regional and international meetings and negotiations, fostering regional partnerships where possible to contribute to the development and effective implementation of a global maritime GHG emission pricing mechanism;
- 2 notwithstanding the preservation of rights, ensure that any existing regional or national economic measure complements and is in line with a global maritime GHG emission pricing mechanism with the objective to avoid double burden and carbon leakage .
- 3 evaluate the administrative burden involved in managing a maritime global GHG pricing mechanism and ensure sufficient resources are in place to manage the mechanism once in place;
- 4 ensure that revenues from a global maritime GHG emission pricing mechanism are used to promote a just and equitable transition in States by facilitating environmental and climate protection, adaptation and resilience building within the boundaries of the energy transition in shipping, paying particular attention to the needs of developing countries.

9 OUTPUTS AND TIMELINES OF THE ROADMAP

9.1 The expected outputs of the Roadmap are set out as at Appendix. These expected outputs have been derived from the various recommendations put forward under each of the focus areas of the Roadmap. The implementation of the Roadmap and consequently the expected outputs require effective partnerships, financial support and for the most part will be project driven.

9.2 The timeline for the expected outputs listed in the Appendix are presented as approximations, offering flexibility to accommodate periodic reviews of the Roadmap's effectiveness and relevance.

These reviews will take into account the implementation requirements, as well as evolving technological advancements and regulatory developments. This will allow continuous alignment with the goals of the 2023 IMO GHG Strategy and initiatives by UNEP/MAP to address climate change in the region.

10 REPORTING AND MONITORING

10.1 A monitoring process is established to ensure the effective implementation of the Roadmap, while an effective reporting mechanism is essential to its successful implementation.

10.2 The Roadmap will be reviewed on a biennial basis by the meeting of REMPEC Focal Points. Adjustments will be made as necessary, reflecting progress and addressing emerging challenges from GHG emissions from ships. This ensures that the Roadmap remains responsive to the evolving needs of the maritime sector in the region and the broader objectives of regional development and sustainability.

10.3 To this end, every two years REMPEC will prepare a consolidated report on the implementation of the Roadmap based on information provided by Contracting Parties and other sources of information available to it. The report will be submitted to the Meetings of its Focal Points. It will be publicly available and will be submitted to other fora, as appropriate.

11 RISK MITIGATION

11.1 The successful implementation of the Roadmap is subject to certain risks including, but not limited to, appropriate and adequate funding being available within Contracting Parties, and regional institutions. Furthermore, the complexities of the Mediterranean Sea Region's socio-politics could present potential political instabilities within the region, which could hinder its successful implementation.

11.2 In order to mitigate the risks identified for the implementation of the Roadmap, making use of digital technologies, as feasibly possible, to improve networking, capacity building and visibility should be considered. To mitigate risks associated with ensuring appropriate and adequate funding, Contracting Parties will ensure that the funds available are used in an efficient and appropriate manner, avoiding duplication of efforts wherever possible, in order to fully implement the Roadmap. Contracting Parties will also coordinate with all stakeholders (including the private sector, NGOs, regional and international non-governmental organisations, etc), looking for opportunities to collaborate and join efforts whenever possible and as appropriate.

11.3 REMPEC will assist Contracting Parties, within the limits of its capabilities, to develop partnerships with regional and international organisations and seek funding opportunities where feasibly possible to support the activities necessary to implement the Roadmap. To mitigate risks associated with potential political instabilities, Contracting Parties will continue the efforts within the framework of the Barcelona Convention to address jointly, and individually, common challenges through regional consensus for the benefit of the entire region, and its individual Contracting Parties.

Appendix

Expected Outputs of the Roadmap

	Expected Outputs	Timeline		
		Short term	Medium term	Long term
i.	Establishment of a Mediterranean Decarbonization Taskforce to oversee the implementation of the Roadmap			
ii.	Accession to and transposition into national law the relevant international instruments addressing the reduction of GHG emissions from ships including aspects of biofouling management, harmonization of national regulations with these instruments			
iii.	Compliance and operational efficiency starting with a focus on the current SO _x ECA, possibly expanding it to NO _x ECA in line with IMO's MARPOL Annex VI			
iv.	Capacity building programme to equip personnel with knowledge on green shipping technologies and IMO GHG reduction instruments, EU maritime legislation while also developing expertise in emissions regulation enforcement and PSC measures			
v.	Comprehensive raising awareness campaign among different maritime stakeholders to inform on shipping emission impacts, highlighting the advantages of the 2023 IMO GHG Strategy			
vi.	R&D on sustainable energy efficiency solutions through public-private collaboration. Research institutions and industry to identify key areas for innovation and share findings of pilot efforts among coastal states through a common platform			
vii.	Voluntary slow steaming, and other routing measures introduced to minimize emissions while maintaining operational efficiency in specially protected areas within the framework of the SPA/BD Protocol			
viii.	Tools designed for data collection for fuel tracking, voyage optimization and predictive maintenance			
ix.	Adequate infrastructure provided to establish In-Water Cleaning facilities and to support ships using alternative fuels or land side energy sources in targeted ports			
x.	An incentive programme which offers economic “green rebates” across Mediterranean ports to reward low-carbon operations to ship owners which will the form the basis of a unified Mediterranean Green Port programme granting fee reduction or priority berthing to environmentally superior v			
xi.	Green Corridors created linking Mediterranean ports within the region and beyond			
xii.	100% net zero emission shipping in the Mediterranean by 2050			