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Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection

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Agenda item 3

REPORT OF THE ADMINISTRATIVE SECRETARY OF GESAMP

Activities and achievements of the Sponsoring Organizations of GESAMP since the 51st session

Introduction

1 The Executive Committee met once by teleconference in the intersessional period, on 26 February 2025, to discuss working group (WG) and correspondence group arrangements, WG funding issues, preparations of reports and additional support for the GESAMP Office. There has been regular communication among the GESAMP Office, the Chair of GESAMP and the members of the Executive Committee in order to identify ways to strengthen the GESAMP activities.

2 GESAMP 52 will be informed of the outcomes of the next session of the Executive Committee, which will be held on Monday, 15 September 2025.

Activities and achievements of the Sponsoring Organizations of GESAMP

3 The Administrative Secretary of GESAMP traditionally reports on the activities and achievements of the Sponsoring Organizations of GESAMP, with the aim of providing GESAMP with an account of their involvement in the protection of the marine environment and their interest in the activities GESAMP undertakes.

4 The annex to this document provides a summary of the Organizations' achievements since GESAMP 51 (held from 2 to 6 September) from IMO, UN-DOALOS, FAO, WMO, IAEA, IOC-UNESCO, ISA and UNEP.

GESAMP Office

5 Since September 2024, the main activities of the GESAMP Office continue to be the following:

.1 supporting the activities of the existing working groups, correspondence groups and task team of GESAMP, including the various peer review activities;

.2 assisting in the publication of GESAMP reports; and

.3 various regular tasks such as outreach, updating the website and providing support to the Chair, Vice-Chair, Members and Sponsoring Organizations.

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ANNEX

1 INTERNATIONAL MARITIME ORGANIZATION (IMO)

Implementation of the Ballast Water Management Convention

1.1 The Ballast Water Management (BWM) Convention was adopted in February 2004 and aims to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms into the marine environment. The Convention entered into force on 8 September 2017. The number of Parties is currently 97, representing 93.64% of the world tonnage (status as of 19 May 2025).

Matters directly related to the GESAMP-BWWG

1.2 In total there are over 70 type-approved ballast water management systems (BWMS) available, including over 50 BWMS type-approved in accordance with the *Code for Approval of Ballast Water Management Systems* (BWMS Code) which is in effect since 13 October 2019.

1.3 At its 82nd session, the Marine Environment Protection Committee (MEPC) granted one Final Approval, and denied another one, to BWMS that make use of Active Substances, based on the recommendations of the 45th meeting of the GESAMP Ballast Water Working Group (WG 34). MEPC 83 granted one Basic Approval and two Final Approvals (including the one denied at the previous session, following submission of an updated application), based on the recommendations of the 46th meeting of WG 34.

1.4 On other matters relating to the submission of applications for Basic or Final Approval, MEPC 83 took the following actions:

.1 noted WG 34's view that any lack of fundamental information in applications in relation to the requirements in the *Procedure for approval of ballast water management systems that make use of Active Substances* (G9) and the *Methodology for information gathering and conduct of work of the GESAMP-BWWG* would be a cause for application failure;

.2 urged applicants not to submit a BWMS for Basic Approval if it was still under development; and

.3 noted WG 34's view that a stocktaking workshop was necessary and approved the terms of reference. In this connection, the Committee requested the Secretariat to consider the possibility of having a stocktaking workshop in conjunction with a future regular meeting of the Group and make the necessary arrangements accordingly.

Other matters

1.5 A summary of the most important outcomes from MEPC 82 and MEPC 83 is provided in this section.

Experience-building phase associated with the BWM Convention

1.6 The Correspondence Group on the Review of the BWM Convention was re-established by MEPC 81 under the coordination of Australia, and was tasked to prepare draft amendments to provisions of the BWM Convention and to associated instruments, and new provisions and/or instruments, based on the list of provisions and instruments for revision and/or development endorsed by MEPC 81 and taking into account the relevant discussions held at that session.

1.7 MEPC 82 had for its consideration document MEPC 82/4/5, indicating items related to the Correspondence Group that would benefit from in-person discussion to advance their resolution, while MEPC 83 had for its consideration the report of the Correspondence Group (MEPC 83/4/4).

In addition, several commenting and other documents were considered, focusing on various issues requiring further consideration under the BWM Convention review.

1.8 Following extensive targeted discussions that dominated the consideration of this agenda item at MEPC 82 and MEPC 83, the Committee agreed several outcomes, with a view to informing and facilitating the further work of the Correspondence Group. In addition, MEPC 83 endorsed the updated list and status of amendments under the Convention review stage of the experience-building phase associated with the BWM Convention, as set out in annex 1 to document MEPC 83/WP.12. This list is guiding the further work of the Correspondence Group on Review of the BWM Convention, which was re-established, under the coordination of Australia, and will report to MEPC 84 with its primary task being to complete the preparation of draft amendments to mandatory provisions of the BWM Convention (namely regulations and appendices in the annex to the Convention, and the BWMS Code), with a view to approval by MEPC 84. In addition, MEPC 83 agreed that, in light of the number and scope of the amendments, it would be preferable to adopt a revised annex to the BWM Convention and a revised BWMS Code, rather than a package of individual amendments to the two instruments.

1.9 In light of the vast scope of the review, MEPC 83 agreed that, while MEPC 84 is expected to approve the revised BWM Convention Annex and BWMS Code as discussed above, the revisions of guidelines and the development of new guidelines are expected to continue after that session, with a view to completion ahead of the entry into force of the amendments to the Convention and the Code (which would be in mid-2028 if the amendments are approved by MEPC 84). The Correspondence Group is expected to continually be re-established until the completion of this work relating to the various instruments associated with the BWM Convention.

1.10 The endorsed list of provisions and instruments to be revised includes a large number of regulations, resolutions and circulars. These entail, inter alia, items with linkages to the work of WG 34, such as making the maximum allowable discharge concentration (MADC) of TRO mandatory, through amendments to regulation D-2 and the BWMS Code, and various amendments to the *Procedure for approval of ballast water management systems that make use of active substances* (G9) including in relation to TRO meters and sensors.

Modifications to ballast water management systems with existing type approval

1.11 Consideration of the potential development of guidance for the approval of modifications made to BWMS after type approval had been ongoing since MEPC 80, taking into account the potential linkage with the BWMS Code and the BWM Convention review. Despite consideration of concrete proposals and relevant commenting and other documents, owing to lack of consensus on various matters as well as time constraints MEPC 81 was not able to finalize guidance on this matter. Following intersessional work among several interested Member States and international organizations, MEPC 82 was able to consider further concrete proposals with a view to finalization of such guidance, and approved the *2024 Guidance for Administrations on the type approval process for ballast water management systems* (BWM.2/Circ.43/Rev.2).

Guidance for record-keeping and reporting under the BWM Convention

1.12 Following the approval by MEPC 80 of the *Guidance on ballast water record-keeping and reporting* (BWM.2/Circ.80), and the adoption by MEPC 81 of the *Interim guidance on the application of the BWM Convention to ships operating in challenging water quality conditions* (resolution MEPC.387(81)), MEPC 82 considered proposals for additional examples to be added to the former Guidance in order to reflect the latter and to provide guidance on recording operational scenarios related to challenging water quality in the Ballast Water Record Book. MEPC 82 approved relevant amendments resulting in the issuance of the *2024 Guidance on ballast water record-keeping and reporting* (BWM.2/Circ.80/Rev.1).

Control of the discharge of disinfection by-products from BWMS

1.13 MEPC 82 considered document MEPC 82/4/4 (Denmark), providing suggestions towards monitoring of disinfection by-products (DBPs) discharged from BWMS, including the potential establishment of MADC(s) for DBPs as well as sampling and analysis of DBPs during surveys. It was noted that a robust evaluation of DBPs already takes place by WG 34 as part of its work, and that the predicted no-effect concentrations (PNECs), which BWMS are evaluated against, essentially play the same role as MADC does for TRO. At the same time, a number of challenges and complicating factors were highlighted with regard to the consideration of this matter. In conclusion, it was recognized that this matter was not mature enough for consideration under the ongoing review of the BWM Convention, as well as complex thus requiring extensive technical consideration; therefore, MEPC 82 invited interested Member States and international organizations to submit concrete proposals on the consideration and reporting of DBPs, including sampling and analysis.

1.14 Subsequently, MEPC 83 considered document MEPC 83/4/9 (Australia and Denmark). In addition to further recognition of the relevant work on the evaluation of DBPs that already takes place by WG 34 as part of its work, there were also views expressed indicating that it is not clear that there is significant environmental impact of DBPs necessitating to address their discharge. At the same time, there was broad support for the proposal to gather information and scientific data in order to improve the knowledge and understanding of this topic. The Group therefore agreed that relevant information gathering could be encouraged while any further steps could be considered at a later time depending on any findings from such information. Therefore, MEPC 83 invited interested Member States and international organizations to submit data and information on the formation and range of DBPs and other relevant chemicals from BWMS that make use of Active Substances, including filter-less BWMS, to a future session with a view to the consideration of any action required to address this matter.

Exemptions under regulation A-4 of the BWM Convention

1.15 MEPC 83 considered document MEPC 83/4/6 (ICES), providing a critical overview of exemptions granted thus far, aiming to highlight that several points in the exemption documents were not aligned with the content or original intention of regulation A-4, and to highlight the risk of transfer of invasive aquatic species via ships' ballast water and sediments if similar exemptions were granted in the future. MEPC 83 invited interested Member States and international organizations to submit concrete proposals to a future session with the aim of improving the consistent granting and reporting of exemptions, ensuring that they fully comply with the requirements of regulation A-4.

Challenges and implications for ships operating in challenging water quality conditions

1.16 Both MEPC 82 and MEPC 83 had for their consideration submissions by the shipping industry addressing operational challenges and implications for ships operating in challenging water quality conditions and implementing the *Interim guidance on the application of the BWM Convention to ships operating in challenging water quality conditions* adopted by MEPC 81 (e.g. MEPC 82/4/7 and MEPC 82/4/9 (ICS), MEPC 83/4/8 (India et al.) and MEPC 83/4/10 (Liberia et al.)). In response, MEPC 82 and MEPC 83 encouraged Member States and international organizations to engage actively and constructively both in the Correspondence Group on Review of the BWM Convention and during actual ship operation, with a view to effectively addressing the issues faced by ships operating in challenging water quality conditions.

Future work

1.17 MEPC 84 (scheduled from 27 April to 1 May 2026) is expected, inter alia, to consider the following matters related to the BWM Convention:

.1 applications for Basic and Final Approval of BWMS that make use of Active Substances, based on the recommendations of the 47th meeting of the GESAMP Ballast Water Working Group (WG 34), which is scheduled from 8 to 12 December 2025, subject to applications received by the deadline of 10 October 2025;

.2 the report of any stocktaking workshop of WG 34 that may be held;

.3 the report of the Correspondence Group on Review of the BWM Convention, focusing on the approval of a revised Annex to the BWM Convention and revised BWMS Code, and decisions on the way forward for the other instruments for revision and/or development;

.4 any submitted data and information on the formation and range of DBPs and other relevant chemicals from BWMS that make use of Active Substances, including filter-less BWMS; and

.5 any other matters relating to ballast water management submitted to that session, including any relevant outcome of PPR 13.

1.18 PPR 13 (scheduled from 9 to 13 February 2026) does not have any matters relating to ballast water management on its agenda. It may therefore only consider any proposals for unified interpretations to provisions of the BWM Convention, and/or any other relevant proposals that may be submitted under “any other business”.

Implementation of the Anti-fouling Systems Convention

1.19 The Anti-fouling Systems (AFS) Convention was adopted in October 2001 and aims to prohibit the use of harmful anti-fouling coatings on ships. The Convention entered into force on 17 September 2008 and the number of Parties is currently 99 representing 95.77% of the world tonnage (status as of 19 May 2025).

1.20 In light of the introduction of controls on cybutryne, MEPC 75 had requested the Governing Bodies of the London Convention and Protocol to consider a revision of the guidance on best management practices for removal of AFS from ships and, following a review by the LC/LP Scientific Groups, in October 2023 the Governing Bodies had approved the *Revised guidance on best management practices for removal of anti-fouling coatings from ships*. Subsequently, the IMO Secretariat conducted a review of the revised guidance in connection with the adoption of the *2023 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species* (2023 Biofouling Guidelines, resolution MEPC.378(80)) and updated relevant references. The updated revised guidance was issued as LC-LP.1/Circ.108/Rev.1 and, following concurrent approval by MEPC 82, as AFS.3/Circ.6.

1.21 In addition, while MEPC 80 had adopted the *2023 Guidelines for the development of the Inventory of Hazardous Materials* through resolution MEPC.379(80) to reflect the introduction of controls on cybutryne, MEPC 82 had for its consideration document MEPC 82/16/3 (China and IACS), proposing changes to the 2023 IHM Guidelines to clarify the relevant threshold in respect of cybutryne when samples are taken directly from the hull or from wet paint containers. Following consideration of this matter by PPR 12, MEPC 83 adopted the relevant *Amendment to the 2023 Guidelines for the development of the Inventory of Hazardous Materials (resolution MEPC.379(80))* through resolution MEPC.405(83).

Biofouling management

1.22 In conjunction with the adoption of the 2023 Biofouling Guidelines, MEPC 80 had agreed to the development of separate guidance on matters relating to in-water cleaning. This work was undertaken by the PPR Sub-Committee and the Correspondence Group on Development of Guidance on Matters Relating to In-water Cleaning, under the coordination of Canada. Following consideration of the report of the Correspondence Group, PPR 12 finalized the draft guidance and subsequently MEPC 83 approved the *Guidance on in-water cleaning of ships' biofouling* (MEPC.1/Circ.918).

1.23 Moreover, MEPC 83 considered document MEPC 83/14/1 (Canada et al.), proposing to develop a legally binding framework for the control and management of ships' biofouling. Following consideration of this proposal, MEPC 83 agreed to include in its post-biennial agenda an output on "Development of a legally binding framework for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species". This output was assigned to the PPR Sub-Committee, with four sessions needed to complete the item, which would mean that by 2029 the PPR Sub-Committee would provide a finalized draft legal framework and recommendations on the way forward (most likely expected to entail the adoption of a new convention). MEPC 83 also approved, in principle, the draft terms of references for this output and instructed the PPR Sub-Committee to refine them. This is a momentous development as the development of mandatory requirements will shift biofouling management from the current voluntary guidelines to enforceable international regulations.

1.24 To support the implementation of the 2023 Biofouling Guidelines, particularly in developing countries, IMO has been implementing two major projects: GloFouling Partnerships, funded by the Global Environment Facility (GEF) through UNDP, and TEST Biofouling, funded by the Norwegian Agency for Development Cooperation (Norad). Having started in September 2018 initially for a period of five years and extended by a further 18 months, the GloFouling Partnerships project ended in May 2025 and a proposal for a follow-up project is being prepared by IMO for submission to GEF via UNDP. in the interim, the TEST Biofouling project has been complementing the GloFouling Partnerships project.

Reduction of GHG emissions from ships

1.25 In July 2023, IMO Member States, at the eightieth session of the Marine Environment Protection Committee (MEPC 80), unanimously adopted resolution MEPC.377(80) on the *2023 IMO Strategy on reduction of GHG emissions from ships* (2023 IMO GHG Strategy), enhancing IMO's contribution to global efforts by addressing GHG emissions from international shipping and establishing timelines for the development of regulatory measures to effectively transpose the GHG reduction commitments into mandatory requirements. The enhanced levels of ambition in the 2023 IMO GHG Strategy include:

.1 a confirmation of the ambition to reduce **CO_2 emissions per transport work (carbon intensity)**, as an average across international shipping, by at least 40% by 2030, compared to 2008;

.2 to reach at least 5%, striving for 10%, of the **energy used** by international shipping to be zero or near-zero GHG emission technologies, fuels and/or energy sources by 2030;

.3 to reach **net-zero GHG emissions** by or around, i.e., close to, 2050, taking into account different national circumstances, whilst pursuing efforts towards phasing them out as called for in the Vision of the Strategy, consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement; and

.4 **indicative checkpoints** to reach net-zero GHG emissions as follows: reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, and by at least 70%, striving for 80%, by 2040, compared to 2008.

1.26 Since the adoption of the 2023 IMO GHG Strategy, IMO Member States have been actively developing the regulatory measures required to implement the Organization's decarbonization commitments. The final draft of these measures, referred to as the 'IMO Net-Zero Framework', was approved by MEPC 83 in April 2025, with a view to adoption in October 2025 at an extraordinary session of the Committee, in line with the timelines set out in the 2023 IMO GHG Strategy.

Development and approval of a basket of mid-term GHG reduction measures: the 'IMO Net-Zero Framework'

1.27 MEPC and the Intersessional Working Group on Reduction of GHG emissions from ships (ISWG-GHG) have been developing a 'basket of mid-term GHG reduction measures', aimed at delivering on the reduction targets of the 2023 IMO GHG Strategy. The measures are comprised of a technical element, namely a global marine fuel standard regulating the phased reduction of a marine fuel's GHG intensity; and an economic element, on the basis of a maritime GHG emissions pricing mechanism.

1.28 A comprehensive impact assessment of the potential impacts of the candidate mid-term measures on the world fleet and on States, in particular least developed countries (LDCs) and small islands developing States (SIDS), was initiated by MEPC 80 (July 2023). MEPC 82 (September/October 2024) noted the outcome of this assessment and agreed to take them into account, as appropriate, in the further development of the measures; and also agreed to further assess the potential impacts of the measures on food security. Following consideration of the review and additional information provided by the Secretariat, MEPC 83 (April 2025) agreed that the impacts on food security are to be taken into account and addressed, as appropriate, in the further development of the measures; and to keep the future potential impacts on food security under continuous review, so that any necessary adjustments may be made.

1.29 Based on the various proposals on the architecture of the mid-term GHG reduction measures, set out as possible amendments to Annex VI (Prevention of air pollution from ships) of the International Convention for the Prevention of Pollution from Ships (MARPOL), MEPC 82 (September/October 2024) produced a draft legal text (the draft 'IMO Net-Zero Framework'). This draft text was further developed during the following ISWG-GHG meetings (ISWG-GHG 18 and ISWG-GHG 19), and finalized by the GHG Working Group at MEPC 83 (April 2025). Following a roll-call vote, MEPC 83 approved the draft amendments to MARPOL Annex VI on the IMO Net-Zero Framework.

1.30 As requested by the Committee, the Secretary-General circulated a draft 2025 Revised MARPOL Annex VI (Circular Letter No. 5005), including the amendments on the IMO Net-Zero Framework, to all IMO Member States with view to adoption at an extraordinary session of MEPC (MEPC/ES.2) in October 2025. Following its adoption, the 2025 Revised MARPOL Annex VI is expected to enter into force in March 2027.

Key elements of the draft 'IMO Net-Zero Framework'

1.31 The goal of the IMO Net-Zero Framework is to achieve the climate targets set out in the 2023 IMO GHG Strategy; accelerate the introduction of zero and near-zero GHG fuels, technologies and energy sources by providing regulatory certainty to the industry and fuel providers; and support a just and equitable transition.

1.32 When adopted, the IMO Net-Zero Framework will be included in a new Chapter 5 of MARPOL Annex VI and will apply to ships of 5,000 gross tonnage (GT) and above. Under the draft regulations, ships will be required to comply with a:

.1 Global fuel standard: ships will be required to reduce, over time, their annual GHG fuel intensity (GFI), i.e. how much GHG is emitted for each unit of energy used, on the basis of a 'well-to-wake' emissions approach and using the IMO *Guidelines on Life cycle GHG intensity of marine fuels* (LCA Guidelines); and

.2 Global economic measure: ships emitting above GFI thresholds will have to balance their compliance deficit by acquiring remedial units by means of pricing contributions to the IMO Net-Zero Fund; while over-compliant ships IMO submission to SBSTA 62 Page 4 will generate surplus units; and those using zero or near-zero GHG technologies will be eligible for financial rewards disbursed by the IMO Net-Zero Fund.

1.33 The GFI reduction factors will be set annually and will be based on a two-tier compliance approach: a direct compliance target and a base target. Ships emitting above the set thresholds will balance their compliance deficit by acquiring remedial units through pricing contributions to the IMO Net-Zero Fund; while for emissions above the base target thresholds the deficit can also be balanced by using surplus units banked from previous reporting periods or surplus units transferred from other ships.

1.34 An IMO GFI Registry will be established and administered by the IMO Secretariat to ensure compliance and facilitate the implementation of the IMO Net-Zero Framework, by recording all actions (banking, cancellations, credit, etc.) and transfers of units in each ship's account in the Registry. For each ship and reporting period, an annual ship account statement will be issued by the Registry, reflecting how the ship complied with the requirements and its potential eligibility to receive rewards for the use of zero or near-zero GHG emission technologies, fuels and/or energy sources (ZNZs).

1.35 An IMO Net-Zero Fund will be established to collect, manage and disburse generated revenues through the acquisition of remedial units. The Fund will operate in accordance with governing provisions to be developed by MEPC. The day-to-day operation of the Fund will be overseen by a Governing Board, appointed by the Committee ensuring a gender and geographically balanced composition and adequate representation of developing countries, in particular SIDS and LDCs.

1.36 The revenue will be disbursed to reward ships for the use of ZNZs and, in the context of the implementation of the IMO Net-Zero Framework, 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, in particular LDCs and SIDS. 1.32

1.37 The IMO Net-Zero Framework also introduces a framework for certification of sustainable fuels to certify the ship's attained annual GFI; enhances the assessment of possible impacts of the measures on food security by inviting the Committee to keep under review the potential impacts of the new chapter on food security; and explicitly supports the promotion of technical cooperation and transfer of technology by inviting Administrations to cooperate amongst them, as well as with the Organization and other international organizations in respect of the implementation of the new measures.

IMO action to promote the uptake of alternative low-carbon and zero-carbon maritime fuels

Life cycle GHG intensity assessment (LCA) of marine fuels

1.38 MEPC 80 adopted Guidelines on life cycle GHG intensity of marine fuels (LCA Guidelines), allowing for a Well-to-Wake (WtW) calculation, including Well-to-Tank (WtT) and Tank-to-Wake (TtW) emission factors, of total GHG emissions related to the production and on-board use of marine fuels. The LCA Guidelines are a key implementation instrument for the IMO Net-Zero Framework as they provide a robust international framework to assess the GHG intensity and sustainability of marine fuels with the overall objective of reducing GHG emissions within the boundaries of the energy system of international shipping and preventing a shift of emissions to other sectors.

1.39 MEPC 81 adopted 2024 Guidelines on life cycle GHG intensity of marine fuels (2024 LCA Guidelines), including amendments on a revised calculation for default emission factors and new templates for their submission; and established a GESAMP Working Group on Life Cycle GHG Intensity of Marine Fuels (GESAMP LCA-WG).

1.40 The GESAMP LCA-WG was tasked to provide the best possible scientific and technical assessment of issues related to the implementation of the LCA Guidelines, such as methodological refinement of the emission quantification to ensure the integrity of the data

provided, refine and explore indicators and approaches under the sustainability themes/ aspects, and methodological requirements with regard to certification.

1.41 The Group is currently composed of 12 experts, acting in their individual capacity, and held its first in-person meeting in September 2024, followed by three virtual sessions in October and November 2024, while experts work continued by correspondence.

1.42 Following the recommendations of the Group, MEPC 83 approved the Methodology for submission, scientific review and recommendation of proposed default emission factors by GESAMP-LCA WG (MEPC.1/Circ.916) and invited further nominations of experts. The Group will meet in June/July and November 2025 to review proposals for default emission factors and methodological issues in the LCA Guidelines. The report of the sessions will be considered by MEPC 84 in Spring 2026.

1.43 The IMO Net-Zero Framework introduces the fuel lifecycle label (FLL) as a technical tool to convey information relevant for the LCA of a marine fuel. This will be an important tool to document a fuel's sustainability across the fuel value chain. Details on the operationalization of the FLL will need to be provided in guidelines to be developed. The IMO Net-Zero Framework also envisages recognition by the Committee of Sustainable Fuel Certification Schemes (SFCS) to certify, as appropriate, GHG emission factors and sustainability themes or aspects of a marine fuel.

1.44 MEPC 83 adopted, by resolution MEPC.402(83), Guidelines for test-bed and onboard measurements of methane (CH4) and/or nitrous oxide (N2O) emissions from marine diesel engines. These Guidelines provide an emission measurement protocol and procedures for documentation and verification of emission values, based on the well-established methodologies of IMO's NOx Technical Code 2008.

4.53 MEPC 83 approved a Work plan on the development of a regulatory framework for the use of onboard carbon capture and storage (OCCS), in order to reduce net GHG emissions from ships without negatively affecting the environment, and re-established a Correspondence Group to advance regulatory developments on these issues.

Future Fuels and Technology project (FFT)

1.45 The IMO Future Fuels and Technology project (FFT), funded by the Republic of Korea, was launched in 2022 to support regulatory decision-making at MEPC and its subsidiary bodies, notably on GHG relevant issues. It conducted so far: a *Study on the readiness and availability of low- and zero-carbon ship technology and marine fuels* (Spring 2023) and a *Review of existing practices on sustainability issues for marine fuels* (Autumn 2023).

1.46 The IMO Future Fuels Portal (https://futurefuels.imo.org/), launched in March 2024, provides easy and free-of-charge access to the latest information on zero and near-zero marine fuels and technologies through a dedicated online portal; and promotes communication and knowledge sharing to foster cooperation and collaboration among stakeholders to achieve the targets of the 2023 IMO GHG Strategy.

1.47 The FFT Project is organizing a Technical Seminar on Onboard Carbon Capture and Storage (OCCS) Systems, taking place in September 2025, to enhance the understanding of the latest developments in OCCS technology, infrastructure readiness and relevant environmental, safety and human element perspectives.

Implementation and review of the short-term GHG reduction measure

1.48 Following the adoption by MEPC 80 (July 2023) of the Review plan of the short-term GHG reduction measure, to be completed by 1 January 2026, MEPC 82 continued its work to review the short-term measure currently in force to reduce GHG emissions from ships by enhancing the energy efficiency of the global fleet. These regulations, adopted in 2021 and effective since 1

January 2023, require existing ships to measure their energy efficiency by calculating their attained Energy Efficiency Existing Ship Index (EEXI) and to continuously improve their annual operational carbon intensity indicator (CII) rating.

1.49 MEPC 82 agreed on a two-phase approach to address a number of key challenges or gaps identified in the implementation of the short-term measures over the past years, ranging from CII impact on individual ships assessments or operational energy efficiency performance and potential penalization of ships on short voyages to the lack of incentivization for port call efficiency and just-in-time (JIT) arrival of ships. The timeframe foresees addressing some challenges and gaps before 1 January 2026 (Phase 1), while others will be addressed after 1 January 2026 (Phase 2).

1.50 MEPC 83 finalized Phase 1 by adopting amendments to the 2021 Guidelines on the operational carbon intensity reduction factors relative to reference lines (resolution MEPC.400(83)) and defining new CII reduction factors for 2027 to 2030, resulting in a 21.5% reduction in 2030 compared to 2019.

1.51 MEPC 83 also approved a Work plan for Phase 2 of the review of the short-term GHG reduction measure (2026 to 2028) including the following work streams: enhancing the Ship Energy Efficiency Management Plan (SEEMP) framework; further developing CII metrics; and considering synergies between IMO carbon intensity/energy efficiency framework and the IMO Net-Zero Framework.

Marine litter and microplastics

2025 Action Plan to Address Marine Plastic Litter from Ships

1.52 MEPC 83 (7 to 11 April 2025) recalled that PPR 12 (27 to 31 January 2025) had been tasked with reviewing the *Action Plan to Address Marine Plastic Litter from Ships* (resolution MEPC.310(73)) (the Action Plan) and noted that PPR 12 had:

.1 prepared the draft 2025 Action Plan and the associated draft MEPC resolution (PPR 12/16, annex 7), with a view to adoption at this session;

.2 prepared an updated grouping of short-, mid-, long-term and continuous actions of the 2025 Action Plan (PPR 12/16, annex 8), with a view to approval in principle at this session, for inclusion in a future revision of the *Strategy to Address Marine Plastic Litter from Ships* (resolution MEPC.341(77)) (the Strategy); and

.3 invited interested Member States and international organizations to submit proposals to the Committee with regard to the potential integration of the 2025 Action Plan with the Strategy into a single resolution.

1.53 Subsequently, MEPC 83:

.1 adopted resolution MEPC.404(83) on the *2025 Action Plan to Address Marine Plastic Litter from Ships* (2025 Action Plan) (MEPC 83/17/Add.1, annex 12), on the understanding that it would be superseded at a future session by a single resolution containing the combined revised Strategy and 2025 Action Plan;

.2 approved, in principle, the updated grouping of short-, mid-, long-term and continuous actions of the 2025 Action Plan, for inclusion in a future revision of the *Strategy to Address Marine Plastic Litter from Ships* (resolution MEPC.341(77)); and

.3 instructed the PPR Sub-Committee to conduct a review of the Strategy, with a view to combining the revised Strategy and 2025 Action Plan in a single resolution, taking into account documents MEPC 83/8 (United Arabe Emirates)

and MEPC 83/8/1 (United Arab Emirates), as well as the updated grouping of short-, mid-, long-term and continuous actions.

Marking of fishing gear

1.54 With regard to proposals to introduce mandatory requirements for marking of fishing gear, MEPC 78 (6 to 10 June 2022):

.1 agreed with the approach proposed in document MEPC 75/8/4 (Vanuatu), namely that a goal-based requirement under MARPOL Annex V for the mandatory marking of fishing gear should be developed;

.2 instructed the PPR Sub-Committee to develop draft amendments to MARPOL Annex V and associated guidelines accordingly; and

.3 invited Member States to submit information on the implementation of fishing gear marking systems, including how the diversity of fisheries and fishing gear had been accommodated, specific technical or legal considerations that had been taken into account, and other relevant experience regarding fishing gear marking to help inform the process of developing a mandatory goal-based requirement.

1.55 Recognizing the importance of also taking action in the near-term with regard to abandoned, lost or otherwise discarded fishing gear, MEPC 78 also instructed the PPR Sub-Committee to develop an MEPC circular to promote the implementation of fishing gear marking systems and the FAO Voluntary Guidelines for the Marking of Fishing Gear, taking into account additional work by FAO, such as the technical manual on marking of fishing gear being developed by FAO.

1.56 Mindful of the decision of MEPC 78, PPR 10 (24 to 28 April 2023) invited interested Member States and international organizations to submit proposals to PPR 11 for:

.1 a draft MEPC circular to promote the implementation of fishing gear marking systems and the FAO Voluntary Guidelines for the Marking of Fishing Gear, taking into account additional work by FAO reported in document PPR 10/13/4; and

.2 draft amendments to MARPOL Annex V and associated guidelines for a goal-based fishing gear marking requirement, taking into consideration the work undertaken by the Sub-Committee on the reporting of fishing gear.

1.57 Some delegations expressed concern with regard to the Sub-Committee's decision to invite proposals to PPR 11 for draft amendments to MARPOL Annex V and associated guidelines for a goal-based fishing gear marking requirement at the same time as proposals for a draft MEPC circular to promote the implementation of fishing gear marking systems and the FAO Voluntary Guidelines for the Marking of Fishing Gear. These delegations were of the view that, at this stage, the PPR Sub-Committee should have invited proposals to PPR 11 only on guidelines for fishing gear marking rather than also inviting proposals for draft amendments to MARPOL Annex V, as, in the view of these delegations, there had been general support for a phased approach entailing the development of guidelines initially, to be followed by consideration of potential mandatory fishing gear marking requirements at a later stage taking into account experience gained from the implementation of non-mandatory measures. These delegations emphasized that such a phased approach was important due to the challenges that many countries, in particular developing countries, would face should mandatory requirements be developed and adopted without allowing sufficient time for capacity-building and for experience to be gathered.

1.58 Subsequently, PPR 11 (19 to 24 February 2024) and PPR 12 (27 to 31 January 2025) noted that no specific proposals on how to amend MAPROL Annex V to incorporate requirements for marking of fishing gear had been received nor proposals for a draft MEPC circular to promote

the implementation of fishing gear marking systems and the FAO Voluntary Guidelines for the Marking of Fishing Gear had been submitted to this session. Consequently, proposals have been invited to PPR 13 (scheduled to meet from 9 to 13 February 2026).

Reporting of lost or discharged fishing gear

1.59 Work on the development of draft amendments to MARPOL Annex V to facilitate and enhance reporting of the loss or discharge of fishing gear has been ongoing since PPR 7 (17 to 21 February 2020) and was progressed in a correspondence group established by PPR 11 (19 to 24 February 2024). Having considered the report of the correspondence group, PPR 12 (27 to 31 January 2025) agreed to the data to be reported to IMO, as set out in annex 9 to document PPR 12/16/Add.1, and invited written proposals to a future session of the Sub-Committee to further develop the specifics of the data to be reported to IMO, as well as proposals to address the outstanding issues outlined in paragraph 22 of the correspondence group's report (PPR 12/11).

Reducing the environmental risk of plastic pellets transported by ships

1.60 MEPC 80 (3 to 7 July 2023) noted the two-stage approach agreed by PPR 10 in relation to reducing the environmental risk associated with the maritime transport of plastic pellets in freight containers, namely:

.1 the development of a draft circular containing recommendations for the carriage of plastic pellets by sea in freight containers, addressing in particular packaging, notification, and stowage, to be finalized at PPR 11 following input by the CCC Sub-Committee, with a view to approval by MEPC 81; and

.2 subsequently, the development of amendments to appropriate mandatory instruments, which could be informed by the experience gained from the implementation of the voluntary measures.

1.61 In this context, MEPC 80 noted the draft MEPC circular on recommendations for the carriage of plastic pellets by sea in freight containers, as set out in annex 9 to document PPR 10/18/Add.1, and the request of PPR 10 to the CCC Sub-Committee for input in that regard.

1.62 MEPC 80 also noted:

.1 the agreement of the Sub-Committee that plastic pellets should not be carried in bulk, and the invitation to interested Member States and international organizations to submit relevant proposals to a future session of the Sub-Committee on potential regulatory changes that may be needed to prevent the shipment of plastic pellets in bulk; and

.2 the establishment of the Correspondence Group on Pollution Response to develop a draft guide on clean-up of plastic pellets from ship-source spills.

1.62 MEPC 81 (18 to 22 March 2024) approved the *Recommendations for the carriage of plastic pellets by sea in freight containers* (MEPC.1/Circ.909). Subsequently, at PPR 12 (27 to 31 January 2025), many delegations expressed appreciation for documents presenting experience gained (see document PPR 12/16, paragraph 11.19), indicating that the stowage, packaging and notifications provisions therein were effective when properly implemented. In this connection, some delegations highlighted the importance of cooperation and collaboration between all stakeholders to achieve uniform implementation and risk reduction.

1.63 With regard the development of mandatory measures to reduce the environmental risks of plastic pellets transported by sea in freight containers, a corresponding action has been included in the *2025 Action Plan to Address Marine Plastic Litter from Ships* (resolution MEPC.404(83)).

1.64 Prior to the adoption of the 2025 Action Plan, MEPC 82 (30 September to 4 October 2024) had instructed the PPR Sub-Committee, as part of the work under the anticipated new action on plastic pellets, to conduct an analysis of the potential mandatory instruments that could be amended and the associated implications at PPR 12 and subsequent sessions, as required. In that connection, MEPC 82 also agreed that:

.1 the outcome of the analysis and the Sub-Committee's recommendation should be submitted to a future MEPC session, with a view to the Committee making a policy decision on the preferred mandatory instrument to be amended; and

.2 although proposed amendments to potential instruments could be submitted and considered by the Sub-Committee as part of the analysis, the Committee's policy decision on the preferred instrument would precede work by the Sub-Committee to fully develop and finalize the envisaged draft mandatory provisions.

1.65 Subsequently, MEPC 83 (7 to 11 April 2025) noted that, as a first step of the analysis, PPR 12 had, inter alia, compiled a table of considerations, advantages, limitations and impacts relating to amendments to mandatory instruments for each proposed approach for the carriage of plastic pellets by sea in freight containers (PPR 12/WP.7, annex 3) and had forwarded all relevant documents to PPR 13 (scheduled to meet from 9 to 13 February 2026) for further consideration.

Input to the INC to develop an international legally binding instrument on plastic pollution, including in the marine environment

1.66 The IMO Secretariat has attended all sessions to date of the intergovernmental negotiating committee to develop an international legally binding instrument on plastic pollution, including in the marine environment (INC) and plans to attend all further INC sessions as an observer, providing input as appropriate.

Ship recycling

1.67 The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (Hong Kong Convention) was adopted in May 2009 and entered into force on 26 June 2025. To date, 24 States, i.e. Bangladesh, Belgium, Republic of the Congo, Croatia, Denmark, Estonia, France, Germany, Ghana, India, Japan, Kingdom of the Netherlands Liberia, Luxembourg, Malta, Marshall Islands, Norway, Pakistan, Panama, Portugal, São Tomé and Príncipe, Serbia, Spain, Türkiye, have ratified or acceded to the Convention, representing 57.15% of world’s shipping by tonnage.

1.68 All six guidelines required under the terms of the Hong Kong Convention to facilitate the global implementation of its requirements in a uniform and effective manner have been adopted. In this context, revised *Guidelines for the development of the Inventory of Hazardous Materials* (resolution MEPC.379(80), as amended resolution MEPC.405(83)) have been adopted, which now include provisions for cybutryne following the introduction of the respective controls in the AFS Convention.

1.69 MEPC 82 (30 September to 4 October 2024), addressed the urgent need for guidance on the interplay between the Hong Kong and Basel Conventions, ahead of the HKC's entry into force, by approving the *Provisional guidance on the implementation of the Hong Kong and Basel Conventions with respect to the transboundary movement of ships intended for recycling* (HKSRC.2/Circ.1) (Provisional Guidance), as an interim measure to help Member States and industry recycle ships in an environmentally sound manner.

71.70 In this connection, MEPC 82:

.1 noted that additional work was required to improve the Provisional Guidance in order to provide further legal clarity and certainty, in cooperation with the Secretariat of the Basel Convention;

.2 encouraged Member States to share their experience with the implementation of requirements and recommendations concerning ship recycling and submit information in that regard to future sessions of the Committee and to relevant meetings under the Basel Convention; and

.3 requested the Secretariat to continue and strengthen the cooperation with the Secretariat of the Basel, Rotterdam and Stockholm conventions (BRS Secretariat) to cater for any information and assistance needed to ensure clear and robust implementation of the Hong Kong Convention and to report the outcome of MEPC 82 to the seventeenth meeting of the Conference of the Parties to the Basel Convention (BC COP-17).

1.71 Subsequently, the IMO Secretariat submitted information to BC COP-17 (UNEP/CHW.17/INF/60) regarding IMO's work on ship recycling, including the Provisional Guidance (HKSRC.2/Circ.1). In this regard, BC COP-17, in its decision BC-17/23 on international cooperation and coordination with other organizations:

.1 welcomed the entry into force of the Hong Kong Convention and took note of the information provided by the IMO Secretariat;

.2 invited Parties and observers to submit to the Secretariat of the Basel, Rotterdam and Stockholm conventions (BRS Secretariat), by 15 November 2025, comments on the provisional guidance and any other additional comments from the perspective of the Basel Convention on the implementation of the Hong Kong and Basel conventions with respect to the transboundary movement of ships intended for recycling; and

.3 requested the BRS Secretariat, subject to the availability of resources, to reflect the comments and to submit them for consideration by the Open-ended Working Group of the Basel Convention at its fifteenth meeting, so as to prepare a draft decision with recommendations to BC COP-18.

1.72 MEPC 83 (7 to 11 April 2025) agreed to include in its post-biennial agenda an output on "Assessment of the implementation of the Hong Kong Convention through an experience-building phase and development of amendments and clarifications as appropriate", assigning the PPR Sub-Committee as the associated organ, with four sessions needed to complete the item.

Safety and pollution hazards of chemicals carried by ships in bulk

1.73 The report of GESAMP/EHS 61 has been disseminated as PPR.1/Circ.14 and was noted by PPR 12 (27 to 31 January 2025). The report of GESAMP/EHS 62 has been disseminated as PPR.1/Circ.15 and is due to be noted by PPR 13 (scheduled to meet from 9 to 13 February 2026).

1.74 MEPC 83 (7 to 11 April 2025) concurred with:

.1 the issuance of MEPC.2/Circ.30 on *Provisional categorization of liquid substances in accordance with MARPOL Annex II and the IBC Code* (published on 1 December 2024), which reflected the evaluation and re-evaluation of products and cleaning additives, as appropriate, carried out in 2024 by the PPR Technical Group on the Evaluation of Safety and Pollution Hazards of Chemicals at its thirtieth session (ESPH 30), and their respective inclusion in lists 1, 2, 3, 5 and 10 of the MEPC.2/Circular; and

.2 with the evaluation of cleaning additives carried out during PPR 12 (PPR 12/16/Add.1, annex 2) and their inclusion in a revision of MEPC.2/Circ.30 (issued as MEPC.2/Circ.30/Rev.1) to allow their use in tank cleaning operations expeditiously.

1.75 MEPC 83 also approved *Interim guidance on the carriage of blends of biofuels and MARPOL Annex I cargoes by conventional bunker ships* (MEPC.1/Circ.917), to facilitate the carriage and delivery of bunker fuel containing up to 30% biofuel mixed with conventional marine fuel oil.

Evaluation and harmonization of rules and guidance on the discharge of discharge water from exhaust gas cleaning systems into the aquatic environment, including conditions and areas

1.76 MEPC 83 (7 to 11 April 2025) endorsed draft terms of reference for the GESAMP Task Team on Exhaust Gas Cleaning Systems, as set out in annex 5 to document PPR 12/16/Add.1, and requested the Secretariat, subject to availability of sufficient funding, to liaise with GESAMP and request the re-establishment of the GESAMP Task Team to carry out the activities described in the terms of reference, with a view to reporting its findings to PPR 13 (scheduled to meet from 9 to 13 February 2026).

London Convention and Protocol (LC/LP)

1.77 The LC/LP governing bodies met from 28 October to 1 November 2024 at IMO in London (LC 46/ LP 19) and the LC/LP Scientific Groups met for their joint annual session (LC/SG 48) from 10 to 14 March 2025, at the Conference Centre "General de División Héctor Alejandro Gramajo Morales", Guatemala City, Guatemala.

Marine geoengineering

1.78 The LC/LP governing bodies adopted a new statement outlining the future direction of work on marine geoengineering, reaffirming that Parties will continue to advance scientific understanding of relevant techniques to inform potential actions. The statement also summarises intersessional work to be undertaken by LC/LP Parties and the Scientific Groups.

1.79 The governing bodies also re-established the Legal Intersessional Correspondence Group on Marine Geoengineering and provided additional guidance to the Scientific Groups' Correspondence Group on Marine Geoengineering, with the aim of advancing the scientific understanding and legal analysis of marine geoengineering techniques to inform potential actions.

Carbon capture and sequestration in sub-sea geological formations

1.80 The governing bodies noted the growing interest in carbon capture and sequestration (CCS) in sub-sea geological formations and encouraged Contracting Parties to share relevant and up-to-date scientific, technical and legal information on CO_2 sequestration projects through submissions to the next joint session of the Scientific Groups in 2025.

1.81 The Scientific Groups, after considering the report of the Correspondence Group on Experiences with the Carbon Dioxide Streams Assessment Guidelines, acknowledged the current lack of practical experience with applying the guidelines. As a result, they agreed to keep the Correspondence Group in abeyance until further substantive information becomes available. Delegations were strongly encouraged to share ongoing developments to support continued information exchange on this increasingly important and urgent topic for the LC/LP.

Disposal of fibreglass-reinforced plastic (FRP) vessels

1.82 The Scientific Groups continued its consideration of the draft guidance on the end-of-life management of fibreglass vessels, taking into account the interim final report by GESAMP WG

43, as well as additional information provided by UNEP. Based on the outcome of a working group established during the joint session, the Scientific Groups requested the Secretariat to submit a revised, final version for consideration by the Groups at the next joint session in 2026.

Monitoring and management of disposal sites

1.83 As part of the joint session of the Scientific Groups, Science Day 2025 was held on the topic of "Monitoring and management of disposal sites". The Science Day programme featured high-level presentations from a range of experts focusing on research, guidance and experiences with monitoring and management of disposal sites for waste or other matter listed in Annex 1 of the London Protocol. Further information on the event, including the presentations are available on the LC/LP website at: Science Day

Sand and gravel mining in the marine environment

1.84 The Scientific Groups considered the information that had been collected by the GESAMP correspondence group on sand and gravel mining in the marine environment. The Groups noted that it was a widespread and increasing activity, which can often be a controversial topic, however, there was general agreement that this issue was of interest to the LC/LP Parties. The Scientific Groups therefore requested the LC/LP Secretariat to invite GESAMP to prepare a scope of work on the issue of sand and gravel mining under the remit of the LC/LP.

Next meetings of the LC/LP governing bodies and Scientific Groups

1.85 The next meeting of the governing bodies of the LC/LP will be held at IMO Headquarters from 27 to 31 October 2025. The next joint session of the LC/LP Scientific Groups is tentatively scheduled to take place in March or April 2026, also at IMO Headquarters.

2 UN DOALOS

The Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction **(BBNJ Agreement)**

2.1 The Preparatory Commission, established pursuant to General Assembly resolution 78/272, for the Entry into Force of the BBNJ Agreement and the Convening of the First Meeting of the Conference of the Parties to the Agreement held its first session from 14 to 25 April 2025. During the first session, the Commission adopted its programme of work (A/AC.296/2025/2), and focused on the following issues: rules of procedure of the Conference of the Parties to the Agreement; terms of reference and modalities for the operation of, and rules of procedure of, the subsidiary bodies established under the Agreement; selection process for the members of the Scientific and Technical Body and the other subsidiary bodies established under the Agreement; arrangements for the functioning of the secretariat, including its seat; modalities for the operation of the Clearing-House Mechanism; financial rules governing the funding of the Conference of the Parties and the funding of the secretariat and any subsidiary bodies; and arrangements with the Global Environment Facility to give effect to the relevant provisions on funding. Documentation for the first session, including the statement by the Co-Chairs of the Commission at the closing of the first session (A/AC.296/2025/9), is available at: https://www.un.org/bbnjagreement/en/meetings/preparatory-commission/documents/first-session

2.2 The second session of the Commission will be held from 18 to 29 August 2025. Besides continuing its consideration of the issues mentioned above, the Commission will also focus on three additional issues during the second session, namely: arrangements to enhance cooperation with relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies; reporting requirements; and the operationalization of other provisions on financial resources and mechanism. Documentation for the second session is being made available at: https://www.un.org/bbnjagreement/en/meetings/preparatory-commission/documents/second-

session.

2.3 The Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations (DOALOS), which performs secretariat functions in relation to the BBNJ Agreement for the time being, continues to implement its programme of activities to promote a better understanding of the Agreement and prepare for its entry into force. These activities include, among others, regional workshops, technical assistance at the national level, online briefings and side events, and the development of capacity-building and outreach tools and materials. Since the last annual session of GESAMP, DOALOS has organized four additional regional workshops, which are for the North-East and South-East Asia, for Caribbean small island developing States, for the Latin America, and for the Atlantic and Mediterranean coasts of Africa, respectively. In addition, DOALOS has organized or contributed to numerous side events on the margines of ocean-related intergovernmental conferences and meetings. Information on these activities can be found at the website of the Agreement: https://www.un.org/bbnjagreement/en.

2.4 A Special Treaty Event was held on the margins of the 2025 United Nations Ocean Conference held in Nice, France, at which 34 States undertook treaty actions under the BBNJ Agreement, including 18 signatures and 18 ratifications. Two additional signatures and one further ratification were received during the course of the Conference. As a result, concerning the ratifications, their total number rose to 51 (including 50 States and the European Union), which marked a significant milestone toward the Agreement's entry into force, for which another 10 ratifications are needed.

High-level 2025 United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development (2025 United Nations Ocean Conference).

2.5 The 2025 United Nations Ocean Conference, co-hosted by France and Costa Rica, was held in Nice, France, from 9 to 13 June 2025, under the overarching theme "Accelerating action and mobilizing all actors to conserve and sustainably use the ocean". The Conference featured, inter alia, 10 ocean action panels, including one on increasing ocean-related scientific cooperation, knowledge, capacity building, marine technology and education to strengthen the science-policy interface for ocean health, and one on preventing and significantly reducing marine pollution of all kinds in particular from land-based activities, with the Chair of GESAMP as a panellist in the latter. It concluded with the adoption, by consensus, of a political declaration entitled "Our ocean, our future: united for urgent action", which, together with the voluntary commitments, forms the Nice Ocean Action Plan. Information on the Conference is available at: https://sdgs.un.org/conferences/ocean2025.

Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects (Regular Process)

2.6 The Regular Process is currently advancing its work on the third World Ocean Assessment (WOA III), which is scheduled to be considered by the General Assembly in late 2025. A review of the draft WOA III by Member States is currently ongoing. WOA III aims to deliver rigorous, policy-relevant ocean science by integrating diverse perspectives, including equity, gender, and indigenous and traditional knowledge. It will provide the latest scientific insights on the physical and chemical systems of the ocean; marine biodiversity and human well-being; the impacts of human activities and ocean-based economies; and the data, tools, and governance needed to foster inclusivity through an integrated approach.

2.7 Building on the achievements of the Regular Process and its previous assessments, the General Assembly, in resolution 79/144, decided to launch the fourth cycle of the Regular Process, covering the period through 2030. This forthcoming cycle will focus on the next assessment of the marine environment, outreach activities, support for other ocean-related processes, and capacity-building initiatives. Information concerning the Regular Process is available at: https://www.un.org/regularprocess/.

2.8 The Regular Process participated actively in the 2025 UN Ocean Conference and the One Ocean Science Congress that preceded it, delivering statements in the plenary and several Ocean Action Panels, organizing poster sessions and a side event dedicated to improving the science-policy interface.

Sustainable fisheries

2.9 The eighteenth round of Informal Consultations of States Parties to the *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks* ("the United Nations Fish Stocks Agreement") was held from 14 to 16 May 2025. Pursuant to General Assembly resolution 79/145, the eighteenth round of Informal Consultations was convened for three days in 2025 to focus its discussions on the topic "The thirtieth anniversary of the 1995 United Nations Fish Stocks Agreement: looking to the future". The discussions addressed the achievements in the implementation of the Agreement in its first thirty years, as well as challenges and opportunities for strengthening its implementation. Among others, delegations noted the important role of the Agreement in promoting fisheries management approaches based on science, including provisions related to data collection and sharing, marine scientific research, and the application of the precautionary and ecosystem approaches. The importance of science-based decision making for safeguarding the health of marine ecosystems and the sustainability of fisheries resources was emphasized, with some delegations highlighting the need for improved data collection and scientific research, including scientific forecasting for fish stock management, resilience measures based on the best available science, and science-driven policy making. Documentation for the Informal Consultations, including the report is available at https://www.un.org/oceancapacity/content/unfsa-informal-consultations-states-parties.

Informal Consultative Process

2.10 The twenty-fifth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea was held from 16 to 19 June 2025 and focused on "Capacity building and the transfer of marine technology: New developments, approaches and challenges". During the discussions, participants provided information and views on new developments, approaches and challenges in capacity-building and the transfer of marine technology, highlighting the role of capacity-building and the transfer of marine technology in underpinning sustainable development and the importance of international cooperation and coordination in this regard. Several presentations highlighted the role of marine science in informing the sustainable development of the ocean, as well as the importance of capacity-building and the transfer of marine technology in advancing marine science and supporting science-based decision-making, including by standardizing ocean data and expanding access to ocean data, research infrastructure and training. The material pertaining to the meeting, including the report of the Secretary-General on the topic of focus of the meeting (A/80/70) and links to the webcast and the panel presentations, is available at https://www.un.org/depts/los/consultative_process/consultative_process.htm.

UN-Oceans

2.11 UN-Oceans continued to play a critical role in enhancing cooperation and coordination among relevant international organizations within the United Nations system, including through joint activities and regular meetings for sharing information. Science is a key element across many UN-Oceans activities, with several UN-Oceans members actively engaged in promoting science-based decision-making and advancing the science-policy interface. On the margins of the 2025 United Nations Ocean Conference, UN-Oceans organized a side event entitled "UN-Oceans as a mechanism to mobilize multilateral ocean action and amplify collective impacts toward the implementation of Sustainable Development Goal 14". The event featured interventions from several UN-Oceans members, including many Sponsoring Organizations of GESAMP. These interventions addressed, among other topics, the role of timely and relevant ocean science in informing the regulation of human activities, strengthening the science-policy interface for

sustainable fisheries and aquaculture, the use of data and predictive habitat models to support area-based conservation measures in international seabed areas, coordinated monitoring and assessment of ocean health, and the contribution of ocean observation and early warning systems to the implementation of SDG 14. Information on UN-Oceans, including its mandate, members and activities can be found at: https://www.un.org/Depts/los/coop_coor/home_en.htm. https://unworldoceansday.org/

3 FOOD AND AGRICULTURE ORGANIZATION (FAO)

Marine Litter and Microplastics

3.1 FAO continues to collaborate with many organisations, including relevant UN Agencies and Programmes, NGOs and academic institutions in addressing and building knowledge on marine litter and microplastics, including; UNEP and the Global Partnership on Plastic Pollution and Marine Litter (GPML), the International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC) and sub-committee on Pollution Prevention and Response (PPR) and the IMO OceanLitter Programme, the International Council for the Exploration of the Seas (ICES), the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) and the Global Ghost Gear Initiative (GGGI).

3.2 FAO is also participating as an observer in the Intergovernmental Negotiating Committee (INC) negotiations for the development of an international legally binding instrument on plastic pollution, including in the marine environment under UNEA 5.2. Resolution 14, with regards to matters concerning (plastic) fishing gear and abandoned, lost or other discarded fishing gear (ALDFG).

3.3 At the request of the 28th Session of the Committee on Agriculture (COAG 28), FAO has developed the Voluntary Code of Conduct for the sustainable use and management of plastics in agriculture (VCoC), in close consultation with FAO Members and a wide range of stakeholders. In September 2024, COAG 29 welcomed FAO's work on plastics in agriculture and reviewed the proposed VCoC. The Provisional Voluntary Code of Conduct on the Sustainable Use and Management of Plastics in Agriculture was published in February 2025[1]. FAO co-sponsors the GESAMP WG43 on Sea Based Sources of Marine Litter.

3.4 The recommendations of the WG43 reports provide important guidance for FAO's initiatives to combat marine plastic pollution, particularly on addressing Abandoned, Lost, or otherwise Discarded Fishing Gear (ALDFG), a key contributor to ocean degradation and fisheries impacts. A decision regarding the continuation of WG43 beyond its current mandate will be taken upon the completion and review of its forthcoming report, anticipated in the second half of 2025. FAO acknowledges the important work of GESAMP Working Group 40 Sources, Fate and Effects of plastics and micro-plastics in the marine environment. Details of activities will be provided under the relevant section of the annual meeting report.

FAO progress in addressing impacts of abandoned, lost or otherwise discarded fishing gear (ALDFG) and climate change on fisheries and aquaculture.

3.5 The Committee on Fisheries (COFI), a subsidiary body of the FAO Council, was established by the FAO Conference in 1965, and meets biannually. It is the only global inter-governmental forum where FAO Members meet to consider the issues related to fisheries and aquaculture. The latest Thirty-Sixth session of COFI (COFI36) took place in 2024 at FAO HQ in Rome. Agenda items 11 and 13 and their outcomes are of particular interest to GESAMP.

Agenda Item 11. Impact of climate change on fisheries and aquaculture, and aquatic foods as a climate Solution.

[1] https://openknowledge.fao.org/items/04b6e7de-4457-4559-b77b-0865f8b2dedf

3.6 Working document COFI/2024/8 was presented, taking stock of the progress made in assessing, projecting, and responding to the impacts of climate change on fisheries and aquaculture, to inform evidence-based decision making on adaptation and mitigation. Moreover, the document provides an update on the development of a set of FAO actions on climate resilient fisheries and aquaculture in support of the implementation of the FAO Strategy on Climate Change 2022–2031. It also summarizes the progressive discussions on aquatic foods under the United Nations Framework Convention on Climate Change (UNFCCC) including the 2023 annual Ocean Dialogue's outcomes on "Fisheries and food security".

3.7 In summary the Committee:

.1 commended the work carried out by FAO in assessing, projecting and responding to the impacts of climate change on aquatic food systems;
.2 requested FAO to provide guidance on adaptation, mitigation and disaster risk management in the sector, including aquaculture;
.3 encouraged FAO, in line with its Strategy on Climate Change 2022-2031, to continue supporting Members in implementing suitable climate solutions;
.4 acknowledged the role of Regional Fishery Bodies (RFBs) in addressing climate change impacts on fisheries and ecosystems, encouraged Members to advance efforts to fully consider climate change in RFB conservation and management measures;
.5 commended the development of a set of FAO actions on climate resilient fisheries and aquaculture, in support of the FAO Strategy on Climate Change for 2022–2031; and
.6 welcomed the progressive discussions on aquatic foods under the United Nations Framework Convention on Climate Change (UNFCCC), and requested FAO to continue engaging with the UNFCCC and other relevant global fora

Agenda Item 13. Marine plastic pollution and Fisheries and Aquaculture

3.8 The working document COFI/2024/10 Rev.2 was presented providing an outline of recent FAO progress in addressing marine plastic litter from the fisheries and aquaculture sectors. This document provides a summary of the state of knowledge on plastic pollution generated by and impacting the fisheries and aquaculture sectors. It reports on FAO's work on reducing plastic pollution in the marine environment, activities to prevent and reduce abandoned, lost or otherwise discarded fishing gear (ALDFG), and the development of the FAO Voluntary Code of Conduct for the sustainable use and management of plastics in agriculture. The last section of this document reports on two international fora (INC and IMO's Marine Environment Protection Committee (MEPC) and Sub-Committee on Pollution Prevention and Response (PPR) which are progressing towards the establishment of legally binding measures to address plastic pollution in the marine environment, including pollution from fisheries and aquaculture operations.

3.9 Complementary information is provided in the following session background documents;

.1 COFI/2024/SBD/2 GESAMP Working Group 43 on Sea-based Sources of Marine Litter Progress Report. This document provides a progress report on the work conducted by GESAMP Working Group 43 on Sea-based Sources of Marine Litter. WG 43 was established by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) in September 2018. The overall objective of WG 43 is to build a broader understanding of sea-based sources of marine litter, in particular from the fishing and shipping sectors; and

.2 COFI/2024/SBD/3 Global overview of lost fishing gear reporting obligations implemented under regional fisheries management organizations and progress in the implementation of the Voluntary Guidelines on the Marking of Fishing Gear to reduce ALDFG and its impacts. This document was submitted by FAO to the 11th session of the IMO Sub-Committee on Pollution Prevention and Response (PPR11) and provides an overview of existing reporting obligations for lost fishing gear implemented by regional fisheries management organizations and an update on the work conducted

by FAO to support implementation of the FAO Voluntary Guidelines on the Marking of Fishing Gear, and the FAO Global ALDFG Surveys.

3.10 The mandatory marking of fishing gear and development of reporting gear losses under Annex 5 of MARPOL, is being discussed at IMO's MEPC and PPR, as activities to address marine plastic pollution from ALDFG. FAO has been an observer in these processes: urging caution and highlighting challenges for the global adoption of gear marking systems; requesting that lost gear reporting mechanisms adopted by RFMOs be evaluated and consideration given as to how to avoid duplication of reporting requirements; and, recommending that IMO members consult with national fisheries counterparts on these matters.

3.11 In summary the Committee:

.1 welcomed the increasing recognition of and global commitment to reduce marine plastic pollution including from fisheries and aquaculture operations, and appreciated the contributions by FAO to the prevention and reduction of abandoned, lost or otherwise discarded fishing gear (ALDFG);

.2 encouraged FAO to further strengthen its activities to better understand the impacts of plastic pollution from fisheries and aquaculture sources, and provide technical guidance on its prevention and reduction;

.3 called upon all countries to actively participate in the International Maritime Organization (IMO) Marine Environment Protection Committee (MEPC) and Sub-Committee on Pollution Prevention and Response (PPR), specifically on discussions on the introduction of mandatory marking of fishing gear, and reporting of gear losses and under Annex 5 of the International Convention for the Prevention of Pollution from Ships (MARPOL);

.4 noted that there are multiple parallel processes and discussions relevant to issues of plastics in the fisheries and aquaculture sector such as on the VCOC on sustainable use and management of plastics in agriculture under FAO COAG and on a legally binding instrument on plastics under the INC of the UNEP, and requested coordination by FAO and Members to participate and contribute technical expertise within these processes to prevent contradictory outcomes;

.5 appreciated FAO's collaboration with IMO in global and regional projects that prevent and reduce marine plastic litter from shipping and fishing operations, including ALDFG, such as the GloLitter Partnerships and regional projects; and

.6 emphasized the need for interdisciplinary research, policy and legislative framework development, and testing and dissemination of fishing gear innovations that prevent and reduce plastic pollution from fishing and aquaculture operations in inland and marine environments.

3.12 More details and a full report are available on the COFI36 documents page of the COFI website.

FAO ALDFG surveys

3.13 The FAO Global ALDFG Survey program[2] aims to fill data gaps identified by GESAMP WG43 and generate global, evidence-based estimates of abandoned, lost, or otherwise discarded fishing gear (ALDFG) across various fisheries and water bodies. Survey data enhances understanding of ALDFG trends and impacts, including quantification of amounts of ALDFG annually and identification of causes and prevention measures. The program supports responsible and sustainable fishing practices and livelihoods by providing data and analysis around gear

[2] https://www.fao.org/responsible-fishing/marking-of-fishing-gear/fao-global-aldfg-survey/en/

disposal, recycling, and management, benefiting coastal communities through reduced ghost fishing, food loss, and species entanglement while fostering technology, education, and sustainable practices globally, particularly in low- and medium-income countries. By providing reliable estimates and other relevant data, the FAO Global ALDFG Survey seeks to inform policies to reduce marine plastic pollution, align fisheries with sustainable development goals, and safeguard ecosystems and food security globally.

3.14 The FAO Global ALDFG Surveys use standardized methodologies to collect data from fishers and industry representatives, which are stored in the FAO Global ALDFG Database for detailed analysis. This data will help map spatial and temporal gear loss patterns and identify underlying causes. To date, surveys have been implemented in 14 countries (including Kenya, Mexico, Seychelles, British Virgin Islands, Montserrat, United States of America, India, Indonesia, Pakistan, Republic of Korea, Thailand, Trinidad and Tobago, China), for 7 different major gear types (Surrounding-Nets, Seine-Nets, Trawls, Dredges, Gillnets, Traps, Hooks and lines).

3.15 FAO encourages all researchers, relevant government agencies and specialized NGOs and others planning to conduct research on ALDFG to contact the Fishing Technology and Operations Team at Responsible-Fishing@FAO.org

National Plans of Actions for addressing ALDFG

3.16 As part of an FAO led project in the Caribbean “Strategies, technologies, and social solutions to manage bycatch in tropical Large Marine Ecosystem Fisheries (REBYC-III CLME+)”, National Plans of Action (NPOAs) for addressing ALDFG have been developed for Guyana, Suriname, Barbados and Trinidad and Tobago. These NPOAs are currently undergoing governmental review and are anticipated to be endorsed and implemented in the near future.

Responsible Fishing Technology

3.17 FAO and ICES jointly support The Working Group on Fishing Technology and Fish Behaviour (WGFTFB), comprising fishing technology experts from around the globe, that regularly discusses and reviews research and practices of fishing technology in relation to fishing gears, and provides guidance for management including the impacts of fishing gears on the environment.

3.18 The WGFTFB 2025 annual meeting was held 15-20 May 2025, in Mazara del Vallo, Sicily, Italy. In addition to plenary sessions covering different aspects of fishing gears, three key topic group meetings were held. One topic group, proposed and convened by FAO, focused on ALDFG and related matters completes its work this year. Additionally, topic groups were approved including the FAO-proposed “Means and methods for the implementation of FAO Voluntary Guidelines on the Marking of Fishing Gear (Marking of Fishing Gear). Term 2026-2028;”

3.19 A meeting report will be published in the coming months. Past reports can be found on the ICES/FAO WGFTFB website.

Impacts of plastic in human health through seafood consumption

3.20 The FAO report on "Microplastics in food commodities" was presented at the 19th Session of the COFI Sub Committee on Fish Trade (COFI:FT), and it was suggested that FAO play a role in the development of standardized testing. In this regard, FAO informed the Codex Committee on Methods of Analysis and Sampling (CCMAS) of the significance of employing suitable sampling and testing methodologies, which are essential to understanding the exposure and critical for toxicological studies and assessments by accurately ascertaining the quantity, dimensions, and morphology of particles, in addition to identifying the types of polymers and additives present in microplastics. CCMAS43 acknowledged the facts presented by FAO and recommended that FAO and WHO keep the Committee informed about initiatives concerning microplastics to guide evaluation strategies and eventually enhance the associated work. FAO is considering holding an Expert Consultation jointly with the International Atomic Energy Agency (IAEA) in 2026 to provide

the necessary information on sampling and testing methods for microplastics to CCMAS, potentially serving as a foundation for subsequent discussions.

Understanding plastic pollution and its impacts in fisheries

3.21 The EAF-Nansen Programme supports the application of the Ecosystem Approach to fisheries management and conducted research on pollution impacts to build knowledge on marine debris and microplastics at sea. The Programme has contributed with knowledge products that exemplify its achievements concerning the occurrence and impacts of marine litter and microplastics. A summary of activities was under development in 2024, on the occurrence and impacts of marine litter and microplastics in the Gulf of Guinea. Guidance for the sampling, identification and recording of marine litter through a Marine Litter Protocol and Identification Guide was published in 2024[3] . In response to concerns within the Gulf of Guinea region about the potential adverse effects of marine litter on the beach seine fishery, the Programme carried out a preliminary investigation in 2023/24. This study explored the social and economic impacts of marine litter on the beach seine fishery across four countries: Benin, Côte d'Ivoire, Ghana, and Togo. The investigation aims to contribute to the enhanced management and sustainability of fishery. The report detailing these findings is in the process of being published. The Programme disseminated its work in Africa and the Bay of Bengal in relation to marine litter through a dedicated publication in 2024[4].

FAO Flagship Publication - The State of World Fisheries and Aquaculture

3.22 Published biennially, the State of World Fisheries and Aquaculture aims to provide objective, reliable and up-to-date information to a wide audience – policymakers, managers, scientists, stakeholders and indeed everyone interested in the fisheries and aquaculture sector. The 2024 edition of The State of World Fisheries and Aquaculture features the Blue Transformation in action. Updates regarding FAO activities addressing marine plastic litter from fisheries are included[5]

Other environmental matters

Common Oceans Program (2022-2027)

3.23 A second phase of the FAO Common Oceans Program has been developed and is underway to demonstrate and promote more comprehensive processes and integrated approaches to the sustainable use and management of the ocean areas beyond national jurisdiction (ABNJ). The Common Oceans Program is a global partnership funded by the Global Environment Facility (GEF), promoting sustainable fisheries and biodiversity conservation in areas beyond national jurisdiction (ABNJ) with a particular focus on tuna and deep-sea fisheries, the Sargasso Sea and cross-sectoral cooperation. Led by the Food and Agriculture Organization of the United Nations (FAO), the Program brings together the United Nations Development Program (UNDP) and United Nations Environment Programme (UNEP), regional fisheries management organizations, intergovernmental organizations, the private sector, civil society and academia.

3.24 The Program consists of five child projects – two global projects that promote more sustainable management of tuna and deep-sea fisheries, a third project that seeks to build capacity to improve cross-sectoral collaboration and coordination on key ABNJ issues at global level, and a fourth project that examines multi-sectoral governance (stewardship) in a pilot area – the Sargasso Sea. A fifth project, the Global Coordination Project, ensures effective coordination, communication, partnerships, lesson learning and knowledge management between the other child projects and support innovative financing initiatives for sustainable use of ABNJ resources across the Program. The Sargasso Sea project may be of particular interest to GESAMP as a

[3] https://doi.org/10.4060/cd1539en
[4] https://openknowledge.fao.org/handle/20.500.14283/cc9739en
[5] https://doi.org/10.4060/cd0683en

case-study for developing conservation measures in what is potentially an ABNJ Large Marine Ecosystem.

Sargasso Sea Project

3.25 Stretching over 5 million km2, the Sargasso Sea is a high seas ecosystem found within the North Atlantic subtropical gyre. The foundation of this unique ecosystem is the floating, golden Sargassum seaweed for which the sea is named. Sargassum supports ten endemic species that have adapted to live their whole lives on the open sea. It also acts as a critical nursery habitat for many species of pelagic fish and all species of Atlantic Sea turtle. Significantly, the Sargasso Sea is the only known spawning ground for two species of endangered anguillid eel. Moreover, it serves as a migratory corridor for several species of sharks, rays, and cetaceans. The Sargasso Sea is threatened by various pressures – including impacts from shipping, fishing, plastic and other pollutants, and climate change.

3.26 The Common Oceans Program will demonstrate how cooperation and partnership can play a leading role in sustaining and restoring the productivity and health of the Sargasso Sea's ecosystem. Key activities include:

.1 **Improve knowledge of the ecosystem.** Conduct a socio-ecosystem diagnostic analysis for the Sargasso Sea, the first ever on a high seas ecosystem, in order to provide a baseline to guide long-term collaborative monitoring and stewardship. This is currently underway;

.2 **Set up a collaborative stewardship mechanism.** Develop a strategic action programme to lay out how conservation aims can be achieved, including a budget to support an ecosystem-based governance approach in the Sargasso Sea; and

.3 **Share knowledge.** Disseminate lessons learned to strengthen stewardship in other ocean areas beyond national jurisdiction (ABNJ).

FAO Knowledge Products Addressing Sea-Based Sources of Marine Litter

3.27 Since the last annual meeting no new knowledge products have been published by FAO. The following provides a summary of relevant knowledge products produced to date.

3.28 The marking of fishing gear to enable the identification of the operator and/or owner of the gear is widely accepted as a key tool for reducing ALDFG. Since publication of the FAO Voluntary Guidelines on the Marking of Fishing Gear (VGMFG) two supplements to the VGMFG and one guidance document for the operationalization of VGMFG at RFMO level have also been produced:

.1 Voluntary Guidelines on the Marking of Fishing Gear;

.2 Suppl. 1 A framework for conducting a risk assessment for a system on the marking of fishing gear;

.3 Suppl. 2 Manual for the marking of fishing gear; and

.4 Operationalization of FAO Voluntary Guidelines for the Marking of Fishing Gear in the Indian Ocean Tuna Commission (IOTC) area of competence.

3.29 Through the IMO/FAO GloLitter Partnerships project, the following knowledge products have been produced aiming at identifying opportunities for the prevention and reduction of ALDFG and more broadly plastic pollution from all types of vessels:

.1 Fishing gear recycling technologies and practices;

.2 Guidance Document on the Country Status Assessment on Sea-based Marine Plastic Litter;

.3 Guidance Document on Developing a National Action Plan on Sea-Based Marine Plastic Litter;

.4 Legal Aspects of Abandoned, Lost or Otherwise Discarded Fishing Gear;

.5 Report on Good Practices to Prevent and Reduce Marine Plastic Litter from Fishing Activities; and

.6 Reporting and Retrieval of Lost Fishing Gear: Recommendations for Developing Effective Programmes.

3.30 A full list of publications is provided under the following section entitled *Relevant documents of interest*.

Relevant documents of interest

3.31 The following documents provide additional information on the above-mentioned topics:

Azzurro, E., Bahri, T., Valbo-Jørgensen, J., Ma, X., Strafella, P. & Vasconcellos, M., eds. 2024. Fisheries responses to invasive species in a changing climate – Lessons learned from case studies. FAO Fisheries Technical Paper, No. 704. Rome, FAO. https://doi.org/10.4060/cd1400en Blanchard, J.L. & Novaglio, C., eds 2024. Climate change risks to marine ecosystems and fisheries – Projections to 2100 from the Fisheries and Marine Ecosystem Model Intercomparison Project. FAO Fisheries and Aquaculture Technical Paper, No. 707. Rome, FAO. https://doi.org/10.4060/cd1379en

Buhl-Mortensen, L., Houssa, R., Weerakoon, W. R. W. M. A. P., Kainge, P., Olsen, M. N., Faye, S., Wagne, M. M., Myo Thwe, S., Cudjoe Voado, G., & Grøsvik, B. E. (2022). Litter on the seafloor along the African coast and in the Bay of Bengal based on trawl bycatches from 2011 to 2020. Marine Pollution Bulletin, 184, 114094. https://doi.org/10.1016/j.marpolbul.2022.114094

Drinkwin, J. 2022. Reporting and retrieval of lost fishing gear: recommendations for developing effective programmes. Rome, FAO and IMO. https://doi.org/10.4060/cb8067en

Einarsson, H., He, P. & Lansley, J. 2023. Voluntary Guidelines on the Marking of Fishing Gear – Manual for the marking of fishing gear. Suppl. 2. Rome, FAO. https://doi.org/10.4060/cc4251en FAO. 2019. Voluntary Guidelines on the Marking of Fishing Gear. Directives volontaires sur le marquage des engins de pêche. Directrices voluntarias sobre el marcado de las artes de pesca. Rome/Roma. 88 pp. Licence/Licencia: CC BY-NC-SA 3.0 IGO. https://www.fao.org/3/ca3546t/ca3546t.pdf

FAO. 2024. The State of World Fisheries and Aquaculture 2024. Towards Blue Transformation in Action. Rome, FAO. https://doi.org/10.4060/cd0683en

FAO. 2024. Guidance for the sampling, identification and recording of marine litter – Marine Litter Protocol and Identification Guide. Rome. https://doi.org/10.4060/cd1539en

FAO. 2025. A Provisional Voluntary Code of Conduct on the Sustainable Use and Management of Plastics in Agriculture. Rome. https://doi.org/10.4060/cd3004en

E. Garrido Gamarro, D.L. Soliz Rojas, R.M. Garcinuño Martínez b,*, G. Paniagua González, P. Fernández Hernando. (2024). Occurrence of common plastic additives and contaminants in raw, steamed and canned mussel samples from different harvesting areas using MSPD-HPLC methodology. Food Research International, 181, 114109. https://doi.org/10.1016/j.foodres.2024.114109

Garrido Gamarro, E. & Costanzo, V. 2022. Microplastics in food commodities – A food safety review on human exposure through dietary sources. Food Safety and Quality Series No. 18. Rome, FAO. https://doi.org/10.4060/cc2392en

Garrido Gamarro, E., Costanzo, V. (2022). Dietary Exposure to Additives and Sorbed Contaminants from Ingested Microplastic Particles Through the Consumption of Fisheries and Aquaculture Products. In: Bank, M.S. (eds) Microplastic in the Environment: Pattern and Process. Environmental Contamination Remediation and Management. Springer, Cham. https://doi.org/10.1007/978-3-030-78627-4_8

GESAMP (2021). "Sea-based sources of marine litter", (Gilardi, K., ed.) (IMO/FAO/UNESCO-IOC/UNIDO/ WMO/IAEA/UN/UNEP/UNDP/ISA Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). Rep. Stud. GESAMP No. 108, 109 p. http://www.gesamp.org/site/assets/files/2213/rs108e.pdf

Giskes, I., Baziuk, J., Pragnell-Raasch, H. and Perez Roda, A. 2022. Report on good practices to prevent and reduce marine plastic litter from fishing activities. Rome and London, FAO and IMO. https://doi.org/10.4060/cb8665en

GloLitter Knowledge Product: Guidance Document on Developing a National Action Plan on Sea-Based Marine Plastic Litter (2023). https://www.fao.org/responsible-fishing/resources/detail/en/c/1651062/

GloLitter Knowledge Product: Guidance Document on the Country Status Assessment on Sea-Based Marine Plastic Litter (2023). https://www.fao.org/responsible-fishing/resources/detail/en/c/1651059/

GloLitter Knowledge Product: Guidance Document on Conducting Techno-Economic Feasibility Studies for the Establishment of Port Reception Facilities for Plastic Waste (2023). https://www.fao.org/responsible-fishing/resources/detail/en/c/1651056/

GloLitter Knowledge Product: Guidance Document on Developing Port Waste Management Plans (2023). https://www.fao.org/responsible-fishing/resources/detail/en/c/1651054/

He, P., Chopin, F., Suuronen, P., Ferro, R.S.T and Lansley, J. 2021. Classification and illustrated definition of fishing gears. FAO Fisheries and Aquaculture Technical Paper No. 672. Rome, FAO. https://doi.org/10.4060/cb4966en

He, P. & Lansley, J. 2022. Operationalization of FAO Voluntary Guidelines for the Marking of Fishing Gear in the Indian Ocean Tuna Commission (IOTC) area of competence. FAO Fisheries and Aquaculture Circular No. 1261. Rome, FAO. https://doi.org/10.4060/cc2889en

He, P. & Lansley, J. 2023. Voluntary Guidelines on the Marking of Fishing Gear – A framework for conducting a risk assessment for a system on the marking of fishing gear. Suppl 1. Rome, FAO. https://doi.org/10.4060/cc4084en

Hodgson, S. 2022. Legal aspects of abandoned, lost or otherwise discarded fishing gear. Rome, FAO and IMO. https://doi.org/10.4060/cb8071en

Ma, X., Bahri, T., Meybeck, A., Bernoux, M. & Kaugure, L. 2024. Navigating the waters of the United Nations Framework Convention on Climate Change – A guide for the aquatic food sector. FAO Fisheries and Aquaculture Technical Paper, No. 718. Rome, FAO. https://doi.org/10.4060/cd1401en

Sala, A. & Richardson, K. 2023. Fishing gear recycling technologies and practices. Rome, FAO and IMO. https://openknowledge.fao.org/items/3818db5d-128d-467c-b916-fc7294698709

4 WORLD METEOROLOGICAL ORGANIZATION (WMO)

4.1 1The World Meteorological Organization (WMO) is the authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the land and ocean, the weather and climate it produces and the resulting distribution of water resources. WMO contributes to ocean-related issues through the observation and monitoring of the ocean and climate; research on the climate and connected Earth systems; development and delivery of services for disaster risk reduction (DRR), including marine hazards; capacity development and training; and the provision of science-based information and tools for policymakers and the public at regional and global levels.

4.2 Sustained oceanographic and marine meteorological observations and their free and unrestricted exchange are critical to addressing meteorological hazards, strengthen resilience in the face of climate change and variability, and build the scientific knowledge base for sustainable development. The WMO's Congress adopted in October 2021 a unified policy on the international exchange of Earth system data to help its Members meet the explosive growth in demand for weather, climate and water services as the world grapples with the dual challenges of climate change and the increasing frequency of extreme weather events.

4.3 The World Meteorological Organization continues its focus on the ocean through **Ocean in earth system & seamless services interactions,** especially with the Infrastructure Commission including the Global Climate Observing System (GCOS), WMO's Service Commission, Research Board and Regional Associations, as well with the Intergovernmental Oceanographic Commission's (IOC) Joint Collaborative Board, **ocean-climate activiti**es, through inputs to the UNFCCC's the Subsidiary Body for Scientific and Technological Advice (SBSTA), the United in Science annual report, and WMO's Regional Climate Centres, **Ocean Monitoring and Data**, including the Global Ocean Observing System (GOOS) and satellite observations, and **ocean prediction and services**, including maritime safety through SOLAS, extreme weather and disaster risk reduction.

4.4 WMO continues strengthening the global observing systems through implementation of the WMO Integrated Global Observing System (WIGOS), the WMO Integrated Processing and Prediction System (WIPPS) and the WMO Information System (WIS). The former two feed into WIS, which acts as a data exchange and information management platform providing operational weather, climate, hydrology, marine and related environmental services, and science- and policy-relevant assessments. These in turn result in requirements for direct use of observations for service that feedback into WIGOS. Amongst WIPPS's ocean related activities are numerical wave prediction, global numerical ocean prediction, global numerical storm surge prediction, coordination of wave forecast verification, marine meteorological services, and marine emergency response.

4.5 A significant body of ocean research is spearheaded and coordinated by the Word Climate Research Programme, which is co-sponsored by WMO. Several of WCRP's Core Projects are actively involved in scientific ocean related activities. For instance, the Earth System Modelling and Observations (ESMO) Core Project addresses critical scientific and technological priorities in the coming decade regarding modelling, observations, and model-data fusion. As a part of this, ESMO also works with ocean communities for further development of Earth System Models (ESM), and through the newly created Working Group on Observations for Researching Climate (WGORC) to advance science and technologies for advancing both the use and development of climate observations data, including the ocean reanalysis development, initialization and prediction. In addition, WGORC will explore how emerging technologies, such as machine learning and AI can enhance the use and application of climate data, including verification and merging global observations of the atmosphere and ocean components of the Earth system in the context of Earth system Data Assimilation. Furthermore, planning for the next phase of the Coupled Model Intercomparison Project (CMIP7) has continued apace with the establishment of CMIP delivery timeline in close coordination with the CMIP Task Teams (TTs) to drive forward the definition and delivery of CMIP7 Assessment Fast Track in an open, consultative, and collaborative manner. Five active CMIP TTs are the Climate Data Access, Climate Data Request,

Climate Forcings, Climate Model Benchmarking and Model Documentation

4.6 The WMO World Climate Research Programme's (WCRP) Regional Information for Society, (RIfS) Core Activity also aims to grow the foundations for effective links between climate research, including ocean research, extreme events and the information needs of society. These projects ensure that modelling and observational efforts are well integrated across WCRP and that the climate information from all WCRP activities is accessible, useful and useable by society at large.

4.7 CLIVAR (Climate and Ocean: Variability, Predictability and Change), a Core Project of WCRP, aims to understand the dynamics, interaction, and predictability of the climate system with an emphasis on ocean-atmosphere interactions. Its priorities include examining the ocean's role in the energy, heat, water and carbon budgets; the role of the ocean in transient climate sensitivity; physical and biogeochemical interactions in the open and coastal ocean; and changes to regional sea level under a changing climate. Each year, this core activity publishes high impact journal articles on pressing topics related to ocean at both global and regional scales. Between early 2024 and mid-2025, CLIVAR has made significant advances across multiple research fronts, resulting in impactful publications and emerging initiatives.

4.8 A major highlight includes a perspective paper accepted in *Nature* (Watanabe et al., 2024), examining a possible shift in controls over tropical Pacific surface warming. The Tropical Pacific Decadal Variability (TPDV) Working Group also contributed a landmark review in *Nature Reviews Earth & Environment* (Capotondi et al., 2023), clarifying mechanisms behind decadal-scale Pacific climate variability. The Marine Heatwave Research Focus (RF), launched in 2023, has led global efforts to understand extreme ocean warming, organizing a major summer school and co-authoring a widely circulated statement on 2023's unprecedented ocean temperatures. In addition, the RF's relevance is underscored by a recent article in *Nature Communications Earth & Environment* (Sen Capotondi et al., 2024), which highlights the need for improved forecasts of marine heatwaves to mitigate their ecological and socio-economic impacts. Additionally, the Southern Ocean initiative SOFIA evolved into a CMIP-endorsed MIP with papers in *Geophysical Research Letters* and *GMD*. In the Indian Ocean, the IORP documented COVID-era data disruptions in *BAMS* (Sprintall et al., 2024), prompting a new task team on observing system impacts. These outputs reflect CLIVAR's renewed emphasis on observational synthesis, model-observation integration, marine extremes, and cross-basin climate dynamics.

References:

Watanabe, M., S M. Kang, M. Collins, Y.-T. Hwang, S. McGregor, and M. F. Stuecker, 2024: Possible Shift in Controls of the Tropical Pacific Surface Warming Pattern. Nature.
Capotondi, A., McGregor, S., McPhaden, M.J. et al. Mechanisms of tropical Pacific decadal variability. Nat Rev Earth Environ 4, 754–769 (2023). https://doi.org/10.1038/s43017-023-00486-x
Capotondi, A., Rodrigues, R.R., Sen Gupta, A. *et al.* A global overview of marine heatwaves in a changing climate. *Commun Earth Environ* **5**, 701 (2024). https://doi.org/10.1038/s43247-024-01806-9
Sprintall, J., M. Nagura, J. Hermes, M. K. Roxy, M. J. McPhaden, E. P. Rama Rao, S. K. Tummala, S. Thurston, J. Li, M. Belbeoch, V. Turpin, 2024: COVID Impacts Cause Critical Gaps in the Indian Ocean Observing System. Bull. Amer. Meteor. Soc., doi:10.1175/BAMS-D-22-0270.1.

4.9 WCRP's Research on Climate Intervention Lighthouse Activity enhances collaboration on existing research in climate intervention; bridging gaps between science, politics, and governance; facilitating the entrainment of developing nations and early career scientists into this research; thereby establishing WCRP as an honest broker and respected community voice in comprehensively assessing the benefits and risks and synthesizing the results of proposed Carbon Dioxide Removal (CDR) and Solar Radiation Modification (SRM) approaches. Related to this activity, a WMO-UNEP SRM consultative workshop and science-policy dialogue took place on 19-20 May 2025 with around 35 physical and social science experts, representatives from 55 member states (43 in person and 48 online), 20 UN (and observers) and 20 stakeholders. Day 1

focused on the science aspects around SRM – current knowledge and gaps; observational capabilities for monitoring and detection; modelling; small scale indoor experiments to deployments; uncertainties around obs. and modelling; regional impacts and risks. Day 2 was on science- policy dialogues: data transparency and sharing; governance, ethics, legal and political sensitivities.

4.10 `WMO released its 20th Greenhouse Gas Bulletin[6] in November 2024. The report stated that the latest analysis of observations from the WMO Global Atmosphere Watch (GAW) in-situ observational network showed that the globally averaged annual mean surface concentrations of carbon dioxide (CO_2) increased by 2.3 parts per million (ppm), marking the twelfth consecutive year with an increase greater than 2 ppm. CO2 concentrations have the atmosphere have increased 11.4% in just 20 years, and their levels are already 51% above that of the pre-industrial era (i.e. pre-1750). The latest analysis of observations from the WMO Global Atmosphere Watch (GAW) in situ observational network shows that the globally averaged surface concentrations (2) for carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N2O) reached new highs in 2023, with CO_2 at 420.0±0.1 ppm, CH_4 at 1934±2 ppb (3) and N2O at 336.9±0.1 ppb. These values constitute, respectively, increases of 151%, 265% and 125% relative to pre-industrial (before 1750) levels. The increase in CO_2 from 2022 to 2023 was slightly higher than the increase observed from 2021 to 2022 and slightly lower than the average annual growth rate over the last decade, and was most likely partly caused by natural variability, as fossil fuel CO2 emissions have continued to increase. The National Oceanic and Atmospheric Administration (NOAA) Annual Greenhouse Gas Index (AGGI) shows that from 1990 to 2023, radiative forcing by long-lived greenhouse gases (LLGHGs) increased by 51.5%, with CO_2 accounting for about 81% of this increase.

4.11 WMO has been a long-time sponsor of GESAMP's Working Group on The Atmospheric Input of Chemicals to the Ocean (WG 38). GESAMP WG 38 held a workshop on 7-10 April 2025 at the University of Heraklion Crete Greece on "research priorities for improving global chemical flux estimates of atmospheric deposition to the ocean". The workshop was attended by 27 scientists from 13 countries, with additional participation online. The meeting was supported primarily by WMO and GAW, with additional support from SOLAS, IMO, IAEA and EUMETSAT and with critical additional support from the University of Crete with local arrangements led by Maria Kanakidou.

4.12 The rationale for this workshop recognised both the importance of atmospheric deposition to the oceans in terms of ocean biogeochemistry, as well as the uncertainties in our current understanding of these fluxes and how these may change in the future. The workshop aimed to identify the weaknesses of current understanding of atmospheric deposition processes and fluxes to the ocean, and the associated observational programmes and modelling of these processes and fluxes. The group of participants worked intensively in a workshop format over four days. The participants involved both experts in modelling and measurement of these fluxes. These two groups worked in part separately, to focus on research needs in both modelling and measurements, but all the workshop participants reconvened regularly throughout the meeting to ensure effective alignment of the activities of the two groups.

4.13 Another important feature of the workshop structure was to involve members of the scientific community who are not themselves experts in atmospheric deposition but utilise this information. This was done to ensure that the outputs of the workshop would be useful to the widest possible community. There was also involvement of representatives of the WMO GAW Programme and SOLAS to ensure that the workshop deliberations were complementary to the work of these two organisations.

4.14 At the end of the meeting all the participants agreed that the workshop had been very successful and committed to writing a report of the workshop for GESAMP and also to prepare a paper for submission to a major scientific journal thereby ensuring that the outputs of the workshop reach both the policy and research communities. The drafting of this paper is now underway.

[6] https://library.wmo.int/records/item/68532-no-19-15-november-2023

4.15 WMO continues to support Members involved in Marine Emergency Response (MER), which includes responding to environmental emergencies such leakage and/or spills of oil, chemical and radionuclides at sea. In response to such emergencies, National Meteorological and Hydrological Services (NMHS) are often called upon to provide, as a minimum, daily updates of weather and ocean conditions which aids those who are responding to track the movements of the spill/leaks through drift model outputs, identify areas to clean up, and as well, safeguard the responders from entering dangerous conditions should the marine weather be unsafe for humans, vessels and equipment. At the request of Members, WMO has published the Guide to Marine Emergency Response (WMO No. 1348) in 2024. WMO has endorsed the designation criteria for Regional Specialized Meteorological Centres on Marine Emergency Response (non-nuclear) and continues to conduct testing exercises with candidates demonstrating their capabilities in support of Members.

4.16 WMO encourages Members with operational ocean forecasting capacity to provide regional services and products that can also be useful for supporting and/or understanding the current and predicted state of the marine environment. This could be through products and services for emergency response (explained above), marine heatwaves etc. WMO is also working to assist Members who wish to start and/or improve their capacity to provide operational ocean forecasting products and services.

5 INTERNATIONAL SEABED AUTHORITY (ISA)

4.17 This document provides additional information on the activities and achievements of the Sponsoring Organizations of GESAMP (document GESAMP 51/X) and outlines the achievements of the International Seabed Authority since the 51st meeting of GESAMP that occurred from 2 to 6 September 2024.

Introduction

5.1 The International Seabed Authority (Authority) is an autonomous international organization established under the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and the 1994 Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea (1994 Agreement).

5.2 UNCLOS and the 1994 Agreement entrust the Authority with a broad mandate. First, the Authority is responsible for organizing and controlling all mineral-related activities in the Area—the seabed and ocean floor beyond national jurisdiction—for the benefit of humankind. In addition, the Authority is mandated to ensure the effective protection of the marine environment from the harmful effects of these activities by adopting appropriate rules, regulations, and procedures.[7] The Authority also promotes the conduct of marine scientific research, including through its 2020 action plan for marine scientific research, in support of the UN Decade of Ocean Science for Sustainable Development.[8] Furthermore, it has the responsibility to encourage the development of appropriate programmes to strengthen the capacity of developing and technologically less developed, a commitment further articulated in its Capacity Development Strategy adopted in 2022.[9]

5.3 This report highlights the key achievements and milestones reached across the Authority's mandates during the reporting period from September 2024 to August 2025. A detailed account of the activities undertaken is provided in the annual report of the Secretary-General, submitted to the Assembly in accordance with Article 166, paragraph 4, of the Convention.10 In addition, the Secretary-General reports on the implementation of the Action Plan for Marine Scientific Research, outlining progress and developments across its six strategic research priorities.11

[7] UNCLOS, Article 145
[8] UNCLOS, Article 143; ISBA/26/A/4
[9] ISBA/27/A/5https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf
[10] ISBA/30/A/2
[11] ISBA/30/A/4

Development of the regulatory framework

5.4 The vast majority of States Parties recognize the need to work effectively and diligently toward a strong and comprehensive legal framework as mandated by the Convention and the 1994 Agreement. In that context, the Authority continued to prioritize facilitating progress on the draft regulations, including the development of environmental standards and guidelines for mineral exploitation in the Area. This remains a fundamental task in delivering a robust regulatory framework for both exploration and exploitation activities in the Area.

5.5 In line with the roadmap adopted in 2022 and revised in July 2023, the Council—under the authority of the President and with the participation of its members, other members of the Authority, and observers—continued its revision of the consolidated text of the draft regulations.[12] During the reporting period, the first part of the 30th Session was held from 17 to 28 of March 2025, during which the Council completed the reading from the Preamble to draft regulation 55.[13] Additionally, a new working modality proposed by the President was endorsed - an informal arrangement of involving volunteer facilitators, designated as "Friends of the President", to assist in refining specific texts close to consensus. The second part of the 30th session will take place from 5 to the 18 of July 2025, during which the Council will resume its reading of the President's Revised Consolidated Text. It is also to advance discussions on the main conceptual issues addressed in regulations 1 to 55, including a common approach and making progress on the annexes and the schedule.

5.6 Some delegations progressed, also during the intersessional period, thematic discussions on underwater cultural heritage; inspection, compliance and enforcement mechanism; equalization measures; rights and interests of coastal States and test and pilot mining. The Council also held high level discussions on the Standards and Guidelines, especially for phase I, as certain aspects of the Regulations may have experienced significant changes, necessitating substantial revisions to maintain alignment and ensure consistency[14].

5.7 Another organ contributing to the development of the regulatory framework is the Finance Committee, which holds primary responsibility for drafting appropriate rules and procedures on equitable benefit-sharing. During its meeting in the second part of the 30th session, to be held from 2 to 4 July 2025, the Finance Committee will continue its discussions on the equitable sharing of financial and other economic benefits derived from activities in the Area, pursuant to section 9, paragraph 7(f), of the annex to the 1994 Agreement. These discussions will be based on a report of the Secretary-General.[15]

Advancement in the domain of the Authority's mandate of marine environmental protection under the auspice of the Legal and Technical Commission.

5.8 The Legal and Technical Commission (LTC) of the Authority is mandated with the responsibility to make recommendations to the Council on the protection of the marine environment, with respect to relevant rules, regulations, and procedures, as well as a monitoring programme on the risks and impacts on the marine environment resulting from activities in the Area.[16] During the reporting period, the LTC held the first part of its 30th session from 3 to 14 March 2025, while the second part is taking place from 23 June to 4 July 2025.

5.9 The LTC continued its work on the development of Regional Environmental Management Plans (REMPS) for priority regions. The REMPs are area-based management tools developed by the Authority to support the implementation of its mandate to protect the marine environment. [17] From 27 April to 1 May 2025, the Secretariat organized a workshop in Qingdao, China to advance the development of the regional environmental management plan for the Area of the Indian Ocean.

[12] ISBA/28/C/24
[13] Secretary-General Annual Report 2024
[14] ISBA/27/C/3-12
[15] ISBA/30/FC/L.1
[16] UNCLOS, Article 165
[17] Regional environmental management plans - International Seabed Authority (the Authority.org.jm)

To inform the workshop, a regional environmental characterization report was prepared, providing a synthesis of the best available scientific data on the marine environment, along with information on human activities specific to the region.

5.10 Under the co-chairmanship of members of the LTC, participants reviewed and updated scientific evidence, refined methodologies, and identified potential area-based management tools essential for ensuring the effective protection of the marine environment in the Area.[18] In addition, the LTC continued their work on the development of a standardized procedure for the development, establishment and review of REMPs.[19] To the furthest extent possible, the draft revised standardized procedure incorporated the most substantive scientific and technical comments received from nine submissions. These included overarching environmental goals and objectives for Regional Environmental Management Plans (REMPs), criteria for selecting experts to participate in scientific and management-focused workshops, and details related to the review process for REMPs.

5.11 Under the auspice of the LTC, the Intersessional Expert Group (IEG) relating to the development of binding environmental thresholds values continued its work in three subgroups on toxicity, turbidity and settling of resuspended sediments and underwater noise and light pollution. [20] During the first part of the 30th session, the LTC took note of the progress made by the Informal Expert Group (IEG). Finalizing the draft report remains a priority, with the aim of releasing it for stakeholder consultations later in 2025. All comments received will subsequently be reviewed by the Commission and reported to the Council.

Promotion of Marine Scientific Research in the Area

5.12 Activities of the Authority to fulfil its mandate in promoting marine scientific research are intertwined with those aimed at delivering its responsibility to promote and encourage the transfer of scientific knowledge and technology to strengthen the capacity of developing and technologically less developed States. As referenced in para 2, the action plan for marine scientific research now serves as a global deep-sea research agenda to advance science and innovation globally. The Secretary-General delivers an annual progress report to the Assembly regarding the implementation of the action plan.[21]

5.13 In December 2024 the Authority published a stock taking report assessing its contribution to the scientific objectives of the UN Decade of Ocean Science for Sustainable Development.[22] It found that, over the past 10 years, a total of USD 8.4 million in programmatic expenditure has been invested in promoting marine scientific research. Member States, United Nations entities, and research institutes have contributed a total of USD 1.9 million in extrabudgetary support. In 2022, the Authority established the International Seabed Authority Partnership Fund—a multi-donor trust fund designed to provide sustainable financing for marine scientific research and capacity development.[23] A key output of the report was the launch of an open-source bibliographic repository that compiles the scientific outputs reported by contractors in their annual reports from the past four years. The repository is available on the Authority's website currently contains 431 peer-reviewed scientific publications and will be updated annually.

Partnerships

5.14 Partnerships are a cornerstone of the Authority's approach to promoting marine scientific research and mobilizing additional resources to accelerate the implementation of its action plan for marine scientific research. During the reporting period, several new targeted scientific initiatives were launched and partnerships consolidated.

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[18] Press release THE AUTHORITY REMP workshop, Qingdao
[19] ISBA/30/C/3 and ISBA/30/C/4
[20] ISBA/27/C42.
[21] ISBA/27/A/4; ISBA/28/A/8; ISBA/29/A/5; ISBA/30/A/4
[22] https://www.the Authority.org.jm/publications/the-contribution-of-the-international-seabed-authority-to-the-scientific-objectives-of-the-un-decade-of-ocean-science-for-sustainable-development/
[23] ISBA/27/A/10

5.15 During the third UN Ocean Conference in Nice, the secretariat, together with the Ministry of Oceans and Fisheries of the Republic of Korea, launched – as part a newly signed letter of cooperation – the Deep-sea Biobank Initiative, aimed at facilitating global access to deep-sea biological samples and genetic data from the Area for the benefit of all humankind cfr. para 28.

5.15 In collaboration with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) from Australia the secretariat elaborated a project proposal on cumulative impact assessments, and a Letter of Support will be signed with CSIRO later this year. In addition, a memorandum of understanding was signed with the Food and Agriculture Organization of the United Nations to facilitate data-sharing and strengthen scientific collaboration between the two organizations.

5.16 The secretariat also continued its participation in the advisory committees of five research and technology projects or initiatives. The common objective is to support the Authority's role in promoting science and identify synergies with existing initiatives to avoid overlap. Examples include the Deep Ocean Observing Strategy (DOOS), Seabed Mining And Resilience To Experimental Impact (SMARTEX), Conservation & Restoration of Deep-Sea Ecosystems in the Context of Deep-Sea Mining (DEEP-REST), and the Technology-Based Impact Assessment Tool for Sustainable, Transparent Deep Sea Mining Exploration and Exploitation (TRIDENT).

Advancing deep-sea taxonomy

5.17 During the reporting period, the Authority made notable strides in advancing Strategic Research Priority 2, which focuses on standardizing and innovating methodologies for deep-sea biodiversity assessment in the Area. Through the Sustainable Seabed Knowledge Initiative (SSKI), now in its third year, the Authority enhanced biodiversity knowledge, taxonomic expertise, and data exchange.[24] The initiative gained new financial support from Ireland and China, expanding on contributions from existing donors. A second edition of the One Thousand Reasons campaign was launched in March 2025 to accelerate species descriptions, particularly supporting scientists from developing countries. The first edition resulted in the description of 90 new species and over 30 scientific publications, with data shared through the Authority's DeepData database and the World Register of Marine Species (WoRMS).[25]

5.18 The secretariat also continued partnerships to strengthen capacity and promote scientific innovation. Notable efforts included the extension of a taxonomist fellowship with IFREMER and preparations for the 2026 ISA-IFREMER Meioscool workshop targeting meiofauna research and training for early-career scientists. Internationally, the Authority actively engaged in global biodiversity processes, including CBD meetings in Nairobi and Cali, to align its work with the Kunming-Montreal Global Biodiversity Framework and the BBNJ Agreement. Additionally, the Secretariat published a policy brief on the use of environmental DNA (eDNA) for deep-sea biodiversity assessments, underscoring the importance of scientific-private sector collaboration to responsibly apply emerging tools in support of sustainable resource development in the Area.[26]

Advancing technology to support the sustainable exploitation of mineral resources in the Area

5.19 Technological advancements are a key enabler of activities in the Area. Under its mandate, the Authority is responsible for acquiring and disseminating knowledge on the evolution of technology, and for promoting and facilitating their transfer to developing States to ensure that all States Parties benefit.[27] In line with this mandate, the Secretariat assesses the technological developments in five priority areas: ocean observation and communication; monitoring; autonomy, automation, and robotics; machine learning and artificial intelligence; and mining, energy, and metal processing.

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[24] THE AUTHORITY Website SSKI homepage.
[25] Species identification by Smithsonian Institution, National Museum of Natural History, University of Lodz, National University of Singapore, Museums Victoria, Biology Centre of the Upper Austria Landes-Kultur GmbH, Second Institute of Oceanography, Ministry of Natural Resource, and the University of Cape Town.
[26] Policy Brief 04/2024
[27] UNCLOS, Article 144.

5.20 A milestone during the reporting period was the organisation of a second expert scoping workshop from 10 to 12th of June in Kobe, Japan.[28] The participants assessed the key findings of marine technology innovation, with a focus on technical and environmental monitoring- its current design, challenges and future requirements, and addressed the capacity development needs to ensure all countries benefit from technological advancements. The workshop resulted in the identification of best practices for the consistent and reliable measurement of environmental parameters, as well as the definition of relevant standards. Environmental monitoring is a regulatory requirement under the Authority's legal framework. As a follow up to the workshop, a final report will be published as a Technical Study on monitoring in the second half of 2025

Enhancing scientific knowledge and understanding of potential impacts of activities in the Area

5.21 Under this priority, the Authority is developing a proposal for the establishment of a new GESAMP Working Group on Cumulative Impact Assessment in Areas Beyond National Jurisdiction and is engaging with other GESAMP sponsors to provide input on the proposal. If advanced, this initiative will enhance the synergy of the work of the Authority and GESAMP's activities. The proposed Working Group would aim to strengthen the scientific understanding of how multiple human activities and natural stressors interact in deep-sea environments beyond national jurisdictions. Specifically, it would conduct a critical review of existing cumulative impact assessment (CIA) methodologies, evaluate their applicability to deep-sea contexts, and develop recommendations for a universal framework. This collaborative initiative would provide science-based tools to support environmental impact assessments and strengthen the science-policy interface for ocean governance in areas beyond national jurisdiction, illustrating the strong alignment between the Authority's work and GESAMP's mandate.

Collecting and disseminating high-quality deep-sea data and deep-sea literacy

5.22 Entrusted in its mandate by UNLOC, the Authority has the responsibility to make available scientific data from the environmental baseline studies. Scientific data is essential to support evidence-based decision-making in the Area. The Authority's global online repository, DeepData, plays a pivotal role in this effort by making non-confidential exploration data publicly available in line with FAIR principles (Findable, Accessible, Interoperable, and Reusable). Since its launch in 2019, DeepData has accumulated over 14 terabytes of structured and unstructured data and attracted significant global interest, with around 19 million website hits from over 321,000 visitors and 600 gigabytes of data downloads. To enhance usability, the Authority has developed a dashboard interface, a "DeepData for Dummies" video series, and contributed a chapter to the upcoming Series on Deep-Sea Mining publication.

5.23 Further efforts to improve data accessibility include integrating oceanographic data from 800 sampling stations into the Ocean Data and Information System (ODIS), coordinated by IOC-UNESCO's IODE. This integration supports a globally interoperable approach to data sharing.[29] In parallel, the Partnership Fund has supported two deep-sea literacy initiatives: a pilot project in Mozambique targeting early-career ocean professionals (USD 20,000), and the development of a data visualization platform for Area activities (USD 125,000), both of which aim to promote capacity development and greater understanding of deep-sea science.

Capacity development

5.24 Capacity development has been a core component of the Authority's work since its inception in 1994, with a strong focus on fostering international cooperation in marine scientific research for the benefit of developing States. Guided by its capacity development strategy, the Secretariat facilitated a wide range of training programmes during the reporting period. These included 83 new training opportunities under the Contractors' Training Programme—one-third of which involved at-sea experience—with 41% of placements awarded to women and 23% to

[28] Press release THE AUTHORITY technology workshop
[29] Ocean Data Information System

candidates from Least Developed Countries (LDCs) and Small Island Developing States (SIDS).[30] The Authority also supported two national expert deployments through its joint project with the UN Technology Bank for LDCs. In parallel, the Joint Training and Research Centres (JTRCs) in China and Egypt contributed to building technical capacity in areas such as regional environmental management planning and environmental impact assessment (EIA), training 41 experts from 29 countries, including a strong representation of women, SIDS, and LDC participants.[31]

5.25 Efforts to advance gender equality in deep-sea science were also significantly strengthened through the Women in Deep-Sea Research (WIDSR) project.[32] The pilot cohort of the S.H.E (See Her Exceed) global mentorship programme is expected to conclude in July 2025, delivering both participation guidelines for women in offshore cruises and an analysis of scientific outputs from exploration activities. To sustain momentum, the programme was actively promoted in a side event co-hosted by the Secretary-General and France. Additionally, the Women in Blue (WIB) project delivered specialized marine geology training to ten women from ten countries during a winter school in January 2025. Reinforcing this gender-responsive approach, most contractors have committed to reserving half of their training placements for qualified women. Complementing these efforts, the DeepDive e-learning platform trained 57 experts through two cohorts, focusing on deep-sea marine scientific research.[33]

Contribution other UN processes

5.26 The Secretariat contributed to several global scientific reports, particularly in collaboration with the Division of Ocean Affairs and Law of the Sea (DOALOS). First, it provided input to the chapter on deep-sea minerals in the World Ocean Assessment, focusing on benefit-sharing and the socio-economic implications of exploration activities in the Area, as part of the third cycle of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including socioeconomic aspects.[34] Second, the Secretariat contributed to the report of the UN Open-Ended Informal Consultative Process on Oceans and the Law of the Sea, submitted to the UN General Assembly, by highlighting recent developments in technology and capacity-building efforts.[35] Lastly, the Secretariat co-authored the UN Report on Marine Geospatial Management, emphasizing the role of DeepData in supporting evidence-based decision-making.[36]

5.27 In June 2025, the secretariat participated in the third United Nations Ocean Conference, with a key highlight being the launch of the Authority–Republic of Korea Deep-Sea BioBank. [37] During several interventions at events, including the "My Ocean Action Panel," the Secretariat emphasized that the Authority holds the best available science—generated through the work of its experts and contractors—and is committed to making this knowledge widely accessible. Furthermore, the importance of establishing strategic partnerships and securing funding to transform deep-sea data into actionable knowledge was strongly underscored.

5.28 In August 2025, the secretariat will organize a side event in New York during the PrepCom of the 2023 Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement). The event will highlight the role of the Authority and its potential contributions to achieving the objectives of the Agreement. It will showcase the Authority's expertise in key thematic areas central to the BBNJ Agreement, including area-based management tools, environmental impact assessments, and marine genetic resources. In particular, the event will shed light on the newly launched BioBank Initiative, which will strategically position the Authority by developing standardized procedures and methodologies that could support the implementation of the Agreement.

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[30] Contractor Training Programme - International Seabed Authority
[31] UNCLOS, Article 276 and 277
[32] See Her Exceed (S.H.E.) Mentorship Programme - International Seabed Authority
[33] Deep Dive - International Seabed Authority https://www.the Authority.org.jm/deep-dive/
[34] https://www.un.org/regularprocess/woa3
[35] https://www.un.org/depts/los/consultative_process/consultative_process.htm
[36] This report was prepared upon the invitation of the UN Secretary-General in reference to paragraph 388 of General Assembly resolution 77/248 and is available here: MarineGeospatialInfoMgmt.pdf
[37] The Third UN Ocean Conference: Reflections from Madam Secretary-General Leticia Carvalho on International Seabed Authority´s engagements - International Seabed Authority

6 INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

6.1 IAEA Marine Environment Laboratories report on activities at its three laboratories: Marine Environmental Studies Laboratory (MESL), Radioecology Laboratory (REL) and Radiometrics Laboratory (RML).

6.2 IAEA Marine Environment Laboratories ensured collaboration within the UN system, through the Environmental Management Group and the UN-Oceans mechanisms, in particular on ocean acidification and marine pollution issues, including microplastic pollution, and participated actively in the 2025 UN Ocean Conference (Nice, June 2025l) by participating to the Ocean Action Panel 4 on Marine Pollution, and hosting a blue-zone side event on 'Combatting Marine Pollution, including Plastics, Through Innovative International Action'.

MARINE ENVIRONMENTAL STUDIES LABORATORY (MESL) ACTIVITIES

Production of Certified Reference Materials (CRMs) and Interlaboratory Comparison (ILC) exercises

6.3 IAEA's CRMs are produced to assist Member States improving the quality of measurement results in the analysis of trace elements, methyl mercury and persistent organic pollutants (POPs) in marine environmental samples, in view of assessing pollution levels and trends and enhancing seafood safety. One new CRM for polychlorinated biphenyls (PCBs), organochlorine pesticides, polybrominated diphenyl ethers (PBDEs), and Polycyclic Aromatic Hydrocarbons (PAHs) in a sediment sample (IAEA-159A) was released and the validity of two Reference Materials for Trace Element in marine sediment (IAEA-457 and IAEA-458) was extended. The production of a new CRM for Trace Elements, Rare Earth Elements (REEs), Methyl Mercury and Arsenic species in mussel tissue (IAEA-491) was initiated.

6.4 A new interlaboratory comparison exercise on the determination of trace elements and Rare Earth Elements (REEs) in Sediment Sample (IAEA-MESL-2024-ILC-TE-SEDIMENT) was organised in 2024-2025. In total 101 laboratories from 60 countries reported results.

6.5 The IAEA participated in the proficiency tests for trace elements and organic pollutants in marine samples organised by Quasimeme. It is also participating in two Consultative Committee for Amount of Substance (CCQM) Pilot and Key comparison studies for Rare Earth Elements (REEs), Thorium, and Uranium in Soil (CCQM-P223) and for Low-Polarity Analytes in Abiotic Matrix: PAHs in Sediment (CCQM-P235). The pilot and key comparison studies are organised by the International Bureau of Weights and Measures (BIPM), for laboratories with demonstrated measurement performances.

Technical Cooperation and IAEA Emergency response

6.6 Trinidad and Tobago (RLA7027) – After an oil spill from a capsized barge off the coast of Tobago in February 2024, the IAEA continued support to Trinidad and Tobago by supporting the laboratories of the Institute of Marine Affairs (IMA) in conducting hydrocarbon testing and oil fingerprinting, and quantifying hydrocarbon pollution in water, sediment and biota. This is to allow the Member State to assess the status of oil pollutions and evaluate the environmental risk of oil-derived toxic compounds to valuable ecosystems and local seafood safety for human consumption.

6.7 Other IAEA Technical Cooperation (TC) projects where MESL is assisting in the development and implementation includes the:

.1 TC project ARM7001 in Armenia for Improving Mercury Monitoring Capacities to meet the requirements of the Minamata Convention;

.2 TC projects (BZE7004) to strengthened national capacities for evidence-based decision making for marine pollution reduction and climate change through the use of nuclear and isotopic techniques;

.3 TC projects (BRA7012/BRA7014) in Brazil to provide training and capacity for compound specific stable isotopes to identify triggers of harmful algal blooms, and address the impact of oil spill and plastic debris in the costal environment of Brazil;

.4 TC project (CUB7011) in Cuba to strengthen marine ecosystem health for sustainable development;

.5 TC project (ELS7011) in El Salvador on strengthening national capacities for sustainable environmental management in the context of climate change;

.6 TC Project (KUW7012) in Kuwait on monitoring microplastic marine pollution as a vector for contaminant transport and its impact on seafood safety;

.7 TC Project (MAR7006) in Mauritius on oil spill emergency response to assess effects on coral reef ecosystems and seafood safety;

.8 TC project (RAS0081) in Sri Lanka for emergency response to mitigate the environmental pollution caused by a container cargo that fired off the coast of Sri Lanka in May 2021;

.9 African Regional TC project (RAF2070) to strengthen regional capacities for using nuclear and isotopic techniques to apply standardized methodologies for carbon accounting in aquatic ecosystems;

.10 Latin America and the Caribbean (ARCAL) Regional TC projects for Evaluating the impact of heavy metals and other pollutants on soils contaminated by anthropogenic activities and natural Origin (RLA5089), for Evaluating Organic and Inorganic Environmental Pollution in Aquatic Environments and Their Impact on the Risk of Cyanotoxin–Producing Cyanobacteria (RLA7026) and to contribute to the management, conservation, and sustainable use of marine resources in the LAC region (RLA7028);

.11 Regional European TC project (RER7016) for Enhancing Coastal Management in Fresh and Saltwater Bodies by Using Nuclear Analytical Techniques, Including the Monitoring of Microplastics;

.12 Regional Asia Pacific region TC project to enhance wetland management and sustainable conservation planning (RAS7037); and

.13 Interregional TC project (INT7022) on Strengthening Ocean Health for Sustainable Development: A Global Approach Using Nuclear and Isotopic Techniques.

Strengthening data quality assurance of Regional Seas laboratories participating in marine monitoring programmes

6.8 The IAEA provided technical support for strengthening the capability of Mediterranean laboratories to accurately analyse contaminants in marine samples in the framework of the Programme for the Assessment and Control of Pollution in the Mediterranean Region (MED POL) of the UNEP Mediterranean Action Plan (MAP). Designated national monitoring laboratories in Mediterranean countries benefit by being able to use the analytical support of the IAEA Marine

Environment Laboratories in the development in their quality assurance programs for the determination of trace elements and organic contaminants in the marine environment.

6.9 A collaboration between IAEA/MESL and UNEP/MAP under 2024/2025 agreement continues the efforts for strengthening data quality assurance in marine pollution monitoring in the Mediterranean region.

6.10 The IAEA organised six Analytical Performance Studies on behalf of MEDPOL between October 2024 and July 2025:

.1 Determination of trace elements in a marine biota and seafood sample;

.2 Determination of organochlorinated compounds and PAHs in a marine sediment Sample;

.3 Determination of PAHs in Seafood Sample (Pilot Proficiency Test);

.4 Determination of Dioxins in Seafood Sample (Pilot Proficiency Test);

.5 Determination of Nutrients in a Water Column Sample (Pilot Proficiency Test implemented in collaboration with Quasimeme); and

.6 Determination of Chlorophyll a in a Water Column Sample (Pilot Proficiency Test implemented in collaboration with Quasimeme).

6.11 The IAEA is organising three training courses on the analysis of contaminants and eutrophication indicators in marine samples in collaboration with UN Environment/MAP MEDPOL:

.1 Training workshop on the analysis of Trace Elements in seafood samples for laboratory practitioners in MEDPOL countries, 13-17 October 2025;

.2 Training workshop on the analysis of PAHs in seafood samples for laboratory practitioners in MEDPOL countries, 13-17 October 2025; and

.3 Training Course on analytical techniques for the determination of nutrients and chlorophyll a in seawater for laboratory practitioners in MEDPOL countries, 3-7 November 2025.

Developing tools and the monitoring of contaminants and long-lived radionuclides in marine samples to assist Member States

6.12 The IAEA continued the development and validation of analytical methods for monitoring and further understanding the marine environment, which were published in peer reviewed journals and presented in International Conferences: i) multivariate optimization for preconcentration and ICP-MS determination of rare earth elements

6.13 Analytical methodologies, research and monitoring studies performed in MESL for emerging and priority contaminants and for the determination of isotope ratios in the marine environment as a tool for pollution source apportionment and understanding of processes included work i) assessing the sources of organic matter using stable isotopes, aliphatic and polycyclic aromatic hydrocarbons in sediments from the Gulf of Batabanó, Cuba ii) developing analytical method to identify and measure microplastics in various marine compartments using pyrolysis gas chromatography – mass spectrometry

6.14 The IAEA contributed to review studies in a) biogeochemical cycles in marine oxygen depleted and dead zones and effects of climate impact-drivers b) effects of climate change on river and groundwater nutrient inputs to the coastal ocean c) per- and polyfluorinated alkyl substances in the North African environment.

RADIOECOLOGY LABORATORY (REL) ACTIVITIES

Strengthening capabilities on biotoxin monitoring in seafood, blue carbon and microplastics through research and development, training and cooperation

6.15 The Receptor Binding Assay (RBA) for harmful algal blooms (HABs) toxin detection continues in full operation at the IAEA for research and development applications and for technology transfer and capacity-building. Laboratory performance is assessed through successful participation in QUASIMEME proficiency testing exercises for paralytic shellfish poisoning. The RBA method is also being used to study biotoxin food web transfer. It has been optimized for application to the emerging ciguatera toxins, and its verification and validation is under way. The RBA method was put into operation in 2017 in Morocco and tested on a large set of samples. Results imply that it may be a potential replacement for the mouse bioassay currently in use for regulatory purposes. The IAEA provides technical and scientific support to over 40 Member States in Latin America, Asia-Pacific and Africa to build capacity in HABs management through 14 national, regional, and interregional TC projects.

6.16 The IAEA continues to organize and host fellowships and internships to transfer the RBA technology to IAEA Member States. The IAEA Marine Environment Laboratories is joining efforts with other national and international organizations (IOC-UNESCO, FAO, the World Health Organization (WHO), US-NOAA, Malarde Institute in French Polynesia, IFREMER France and IRTA Spain) to improve knowledge and enhance capabilities in HABs management and to participate actively in the International Panel on HABs.

6.17 The Environmental Studies Centre of Cienfuegos, Cuba (CEAC) was designated as IAEA Collaborating Centre to work on Blue Carbon, marine microplastics pollution, and on HABs in the context of environmental and global change and continues to collaborate actively with the IAEA to expand the use of nuclear techniques for HABs management. CEAC has assessed the performance of the CTX-RBA using a brevotoxin as standard matrix.

6.18 IAEA Marine Environment Laboratories is continuing to advance the inter-Agency Global Ciguatera Strategy which is now in the last phase of approvals.

6.19 The IAEA continues to use radiotracers to investigate bioaccumulation of contaminants and essential elements in diverse marine organisms. The focus for this period was on: i) environmental factors affecting bioaccumulation of trace metals in select marine organisms; ii) effects of multiple stressors (ocean acidification, hypoxia, temperature in parallel with inorganic pollutants, toxins and radionuclides on fish and marine invertebrates; iii) the calcification rate of corals under changing environmental conditions (e.g. pH or hypoxia); and iv) effect of microplastics on the physiology of marine organisms or their role as vector of co-contaminants to fish and shellfish. The IAEA has also been investigating exposure routes for radiocesium in select marine organisms.

6.20 The IAEA Marine Laboratory in Monaco is active in research and capacity building on Blue Carbon assessments for interested Member States, through an IAEA Peaceful Uses Initiative project funded by the United States. Using nuclear techniques, sediment cores from vegetated coastal marine ecosystems such as saltmarshes, seagrass meadows and mangroves are being analysed to investigate aspects of marine carbon flux and storage capacity of these ecosystems under changing climate conditions. IAEA assesses the potential of coastal vegetated ecosystems (mangroves, seagrass and saltmarshes) as well as seaweed farms as relevant tools for climate change mitigation. The work commenced in 2022, and efforts are mainly on a) to assess the potential of coastal vegetated ecosystems as relevant tools for climate change mitigation worldwide, and b) to provide capacity building for interested Member States through regional technical cooperation projects and training workshops. In 2024, collaborations were established with more than 30 Member States, jointly with research institutes, to use radionuclides to assess the rates of carbon sequestration in vegetated coastal marine areas and to aid Member States in data collection for the evaluation of the capacity of these ecosystems for long-term carbon storage.

In Africa, the Agency is working with 16 Member States on capacity building on the topic of blue carbon through a regional technical cooperation project.

6.21 These activities have placed the IAEA in a central position to participate in the research on Blue Carbon, as well as in assisting through technical training, analyses and advice to Member States worldwide.

Technical Cooperation

6.22 The IAEA Marine Environment Laboratories Radioecology Laboratory in Monaco assist Agency Member States in the implementation of national, regional and interregional Technical Cooperation Programme projects by providing expert technical oversight and guidance on such topics as: climate change and ocean change impacts, ocean acidification, marine pollution, eutrophication, marine radioactivity, seafood safety and marine plastics. Through these projects, many recipient Member State countries are able to report directly on relevant 2030 Agenda targets, such as for example, Sustainable Development Goal 14.3 (Ocean Acidification) or 14.1 (Marine Pollution).

Activities of the IAEA's Ocean Acidification International Coordination Centre (OA-ICC)

6.23 Through a comprehensive program of coordination and support, the IAEA OA-ICC continues to advance international activities in ocean acidification science, capacity building, and communication.

6.24 The OA-ICC works with international partners to foster scientific cooperation and consolidate a strong ocean acidification research community across the globe, providing access to data, training, best practices for field and laboratory work and standardized methodology, as well as resources and platforms for regional and international networking and collaboration.

6.25 In the context of its continued capacity building efforts, the Ocean Acidification International Coordination Centre" (OA-ICC), supports Member States in their efforts to tackle ocean acidification, thereby addressing Sustainable Development Goals 13 and 14, and in particular SDG target 14.3. Since its launch in 2013, the OA-ICC and its partners have provided opportunities for hands-on training, capacity building, dissemination of information and networking to more than 850 scientists from 110 Member States, has promoted the development of harmonised methodologies and best practices in ocean acidification research, and provided access to scientific databases and a range of other resources for various audiences. The OA-ICC supported the establishment of a Global Ocean Acidification Observing Network (GOA-ON) alongside its regional hubs and early-career scientist's network. The OA-ICC supported the development of the SDG 14.3.1 Data Portal - a tool for the submission, collection, validation, storage and sharing of ocean acidification data and metadata submitted towards the Sustainable Development Goal 14.3.1., curated by IOC-UNESCO as custodian Agency for the SDG Target 14.3.

6.26 Since 2025, the OA-ICC is also addressing marine carbon dioxide removal techniques (mCDR), namely providing training to Member States in assessing the potential effects of ocean alkalinity enhancement on marine ecosystems. The OA-ICC was well represented at the 29th session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP29), co-organising and participating in side-events addressing aspects of ocean acidification research, policy and governance, capacity building and interdisciplinary and cross-sectoral approaches to climate change adaptation and mitigation, including nature-based solutions. During the One-Ocean Science Congress and UNOC3 in Nice 2025, the OA-ICC presented its achievements in Capacity Building and on Ocean Alkalinity Enhancement assessments.

6.27 A key effort of the OA-ICC is to ensure sustained archival and quality control of data on the biological response to ocean acidification, and to promote easy access to the data for all users. To this end, the OA-ICC manages an online, free-access comprehensive data compilation

currently containing more than 1,600 data sets extracted from over 1,600 scientific papers. This resource is maintained in cooperation with Xiamen University and is hosted at the Earth & Environmental Science Information System Pangaea, curated by AWI and MARUM in Germany.

6.28 The OA-ICC bibliographic database - assembling all relevant scientific publications and grey literature (e.g., reports, policy documents) on ocean acidification – was systematically updated over the course of 2025. It currently contains more than 11,000 references with citations, abstracts and specific keywords, and can be easily accessed, free of charge, via the Zotero online platform for research sharing and collaboration.

6.29 Finally, work on the OA-ICC news stream continued on a daily basis; this online information platform offered access to over 900 ocean acidification-related pieces of content and received more than 65,000 views from 190 countries in 2024.

Activities under the IAEA's NUTEC Plastics initiative

6.30 The Agency has developed the NUTEC Plastics initiative to help its Member States integrate nuclear energy and its derived techniques into their efforts to address the challenges of plastic pollution. NUTEC Plastics continues to strengthen and scale-up the development of reliable and cost-effective techniques to assess the spatial and temporal abundance and character of marine plastic pollution to better understand their origin and transport mechanisms, as well as fate and impact on the marine environment. This includes the development of harmonized protocols to identify microplastics in environmental samples, implementation of analytical techniques in line with best practices and state-of-the-art science, and training for scientists and technicians in their use. Under NUTEC Plastics, more than 100 Member States are being supported to monitor microplastic abundance and polymer types in the coastal zone and report on SDG14 indicator 14.1.1b.

6.31 The IAEA Marine Laboratory in Monaco is technically leading the NUTEC PLASTIC initiative. Through NUTEC, it works with 99 member states to implement national microplastics monitoring programs. A total of 132 technicians has been trained in polymer sampling and analysis techniques and 50 laboratories have received laboratory equipment and materials. Under the INT7021 project "Contributing to the Global Monitoring of Marine Plastic Pollution under the IAEA NUclear Technology for Controlling Plastic Pollution (NUTEC Plastics) Initiative", 63 laboratories share harmonized protocols for monitoring microplastics in coastal areas enabling them to report on the microplastic pollution indicator SDG14.1.1b.

6.32 In 2024, the Agency signed an MoU with Brazil to set frameworks of scientific cooperation, under NUTEC Plastics, to gather data on the type and distribution of microplastics in the Antarctic regions. The Agency collaborated with Latin America and Caribbean Member States Institutions, through the REMARCO network, to develop harmonized microplastics sampling protocols to guide the collection and analysis of samples for the monitoring of microplastics in coastal areas. The Agency continued to actively contribute to the International Negotiating Committee to develop a legally binding instrument on plastic pollution, including in the marine environment, during the reporting period, namely in sessions INC 5 and 5.2. At the 2025 UN Ocean Conference in Nice, the Agency organized a side event with international partners on 'Combatting Marine Pollution, including Plastics, Through Innovative International Action'.

6.33 Within the NUTEC Plastics initiative, the Agency collaborates with the UNEP's Global Partnership on Plastic Pollution and Marine Litter (GPML) for the Harmonization of Monitoring and Assessment of Plastic Pollution.

RADIOMETRICS LABORATORY (RML) ACTIVITIES

IAEA's project for "Marine Monitoring: Confidence Building and Data Quality Assurance"

6.34 With a view to assisting the Government of Japan in its objective of making the Sea Area Monitoring Plan comprehensive, credible and transparent, the IAEA, through its Environment Laboratories, is helping to ensure the high quality of the marine radioactivity monitoring data and to prove the comparability of the results. A project on 'Marine Monitoring: Confidence Building and Data Quality Assurance' was initiated in 2014 as a follow-up activity to recommendations made on marine radioactivity monitoring in a report issued by the IAEA in 2013 which reviewed Japan's efforts to plan and implement the decommissioning of the Fukushima Daiichi Nuclear Power Station. Since then, 14 sampling missions and interlaboratory comparisons (ILCs) and 12 proficiency tests (PTs) have been organized through this project. Project reports can be found at Marine Monitoring: Confidence Building and Data Quality Assurance | IAEA, showing that Japan's sample collection procedures follow the appropriate methodological standards required to obtain representative samples. The results obtained in ILCs demonstrate a high level of accuracy and competence on the part of the Japanese laboratories involved in the analyses of radionuclides in marine samples for the Sea Area Monitoring programme, corroborating the conclusions of the PTs.

6.35 In April 2021 Japan announced the Basic Policy on handling of the treated water stored at the Fukushima Daiichi Nuclear Power Station (FDNPS), which is to discharge the treated water into the sea surrounding the plant, subject to domestic regulatory approvals. Soon after, the Japanese authorities requested assistance from the IAEA to monitor and review those plans and activities related to the discharge of the treated water to ensure they will be implemented in a safe and transparent way. The IAEA is conducting this review against the IAEA Safety Standards, which constitute harmonized high levels of safety worldwide and, as such, a global reference for protecting people and the environment. The IAEA Marine Environment Laboratories has been supporting this review – both prior and following the start of discharges in August 2023 – through the corroboration of source and environmental monitoring related to the discharges of ALPS treated water at FDNPS and a review of relevant sampling and analytical methods used by Japanese laboratories involved in this monitoring. Based on a comprehensive assessment carried out since late 2021, the IAEA has concluded that the approach and activities to the discharge of ALPS treated water taken by Japan are consistent with relevant international safety standards.

6.36 Furthermore, the IAEA notes the controlled, gradual discharges of the treated water to the sea, as currently planned and assessed by TEPCO, would have a negligible radiological impact on people and the environment. Detailed reports can be found at Fukushima Daiichi Treated Water Release – Advanced Liquid Processing System (ALPS) | IAEA.The IAEA conducts the corroboration of source and environmental monitoring in collaboration with members of the network of Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA), through regular interlaboratory comparisons of radionuclide measurements in ALPS treated water and in marine environmental samples, including seawater, sediment, fish and seaweed. In addition, since October 2024 the IAEA started implementing Additional Measures, offering the opportunity of hands-on sampling ALPS-treated water from the discharge facility prior to dilution, diluted ALPS-treated water before discharge, seawater and fish, to experts from Member States. The IAEA also has a continuous presence on-site Fukushima Daiichi Nuclear Power Station. Carrying out prompt measurements to verify Japanese measurement results related to releases.

Technical Cooperation

IAEA Regional Technical Cooperation project RCA RAS7039 (ARASIA)

6.37 The new flagship IAEA Regional Technical Cooperation Project "Enhancing the Protection of Marine, Terrestrial, and Coastal Environments through Holistic Environmental Monitoring Programmes", running in the region of Arab Countries in Asia (ARASIA) aims to improve the integrated regional quality-assured capabilities for marine, coastal and terrestrial environmental

monitoring. The project, to be implemented between 2023-2027, involves 10 countries: Iraq, Jordan, Kuwait, Lebanon, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen.

Analytical quality services

6.38 The Marine Environment Laboratories maintained ISO 17034 accreditation for the production of Certified Reference Materials (CRM) for gamma emitting radionuclides in marine matrices. This accreditation endorses the high quality of the analytical support services offered by the IAEA to Member States. CRMs are available through IAEA's webpages at Reference Materials - Home (iaea.org).

6.39 Proficiency Testing: Fourteen world-wide Proficiency Tests (PTs) for radionuclides in seawater were organised between 2012 and 2025. Over 100 participants registered in the 2025 PT. These PTs are essential to testing the comparability of marine radioactivity monitoring data worldwide, required for transboundary pollution events and emergency situations.

MARIS data portal

6.40 The IAEA's Marine Radioactivity Information System (MARIS) is an open-access global database for marine radioactivity measurements that is accessible online at maris.iaea.org MARIS - Marine Radioactivity Information System (iaea.org). The database and the website underwent major re-development and update during the period 2019-2024. MARIS is a central part of the data collection effort of IAEA's Coordinated Research Project (CRP) K41017 "Behaviour and Effects of Natural and Anthropogenic Radionuclides in the Marine Environment and their Use as Tracers for Oceanography Studies". In response to the increasing need to educate the wider general audience on the topic of marine radioactivity, a new FAQ page has been published on the MARIS website. The volume of data in MARIS has been substantially increased, in July 2024 MARIS containing over 980,000 individual measurement results of radionuclides in seawater, suspended matter, bottom sediment and biota.

Coordinated research

IAEA CRP K41017

6.41 The CRP "Behaviour and Effects of Natural and Anthropogenic Radionuclides in the Marine Environment and their Use as Tracers for Oceanography Studies" aims to develop and apply methods combining advanced and rigorous data treatment and modelling approaches for determination of spatial and temporal patterns, behaviour and effects of radionuclides in the marine environment in order to provide Member States with methodological guidance, data and information on levels, trends, effects of radionuclides and their applications to oceanographic process studies. The expected outcomes of this CRP include improved guidance for IAEA Member States for assessing marine radioactivity according to harmonized, best practice methodologies; an updated, comprehensive understanding of the behaviour and effects of natural and anthropogenic radionuclides in the global marine environment and of processes affecting their distributions and increased capacity for the application of radiotracer techniques to oceanographic research. The CRP started in 2017 and was completed in 2024. A comprehensive data compilation of global marine radioactivity measurements covering approximately the last decade completed as part of the CRP will provide the data required for the assessment phase of the CRP. The dataset is also made publicly available through MARIS and will constitute a comprehensive and reliable baseline against which any future changes can be compared.

6.42 The IAEA started the CRP on 'Optimizing Nuclear Techniques to Assess Microplastic Pollution in Coastal Areas' (K41024) with focus on method development and harmonisation for coastal sediments, in particular. Thanks to the EBR funding from Australia, 17 Member States, including from African countries, are participating in this CRP.

Collaboration with regional conventions

6.43 The IAEA collaborates with HELCOM (Helsinki Commission), through the HELCOM MORS EG, the Group of Experts for Monitoring Radioactive Substances in the Baltic Sea, on database development and analytical quality support. In the same areas of interest the IAEA also collaborates with OSPAR (Oslo Paris Convention), through RSC, its Radioactive Substances Committee.

7 INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC of UNESCO)

7.1 This summary is based on a progress report by the IOC Executive Secretary to the 2025 IOC Assembly on the work accomplished since the Session of the IOC Executive Council 2024. It reviews key developments relevant to GESAMP and includes broader reflections on IOC development with a focus on aspects relevant to marine environmental protection. For full reporting see https://www.oceanexpert.org/document/36076

7.2 Coordinated by IOC since 2021, the United Nations Decade of Ocean Science for Sustainable Development (2021–2030) has cemented its place as the largest coordinated global ocean science initiative ever undertaken. The 'Ocean Decade' has galvanised over 20,000 individuals working in multi-disciplinary, international teams to implement 59 endorsed global Decade programmes and over 500 regional and national Decade projects. These Decade Actions are led by research institutes, NGOs, private sector and government partners in 76 countries. Thirteen (13) regional and thematic decentralised coordination structures are hosted by partners including a newly launched Decade Collaborative Centre for sustainable ocean economy hosted by Barcelona City Council. Forty (40) countries have established National Decade Committees.

7.3 The 2024 Ocean Decade Conference, hosted by Spain in April 2024 in Barcelona, convened over 2,600 in-person participants to discuss the science and knowledge needs that will guide the future priorities of the Ocean Decade, as well as opportunities related to partnerships and resources and the means of ensuring the full engagement of under-represented groups. This was achieved through an unprecedented mobilisation of the IOC Secretariat and its partners over the past three years. The recommendations of the Ocean Decade Conference have provided a foundation for IOC's engagement in the preparation of the 2025 United Nations Ocean Conference. This Conference, which will also mark the mid-point of implementation of the Ocean Decade, will be a seminal moment in the global ocean governance agenda and a unique moment for IOC to advance action for solutions-based ocean science.

7.4 Much remains to be done to fill our collective knowledge gaps about the ocean—both in terms of the knowledge we have never had, and in terms of the new knowledge needed as a result of the dramatic changes unfolding in ocean ecosystems. There is a need to build, expand and sustain the infrastructure for ocean observations and data, and for structural and systemic changes to the way we finance it. This will be key to sustainable ocean management at national level and for effective implementation of international agreements such as the BBNJ treaty. Given the significance of the ocean in economic and societal terms, as well as the implications at planetary scale of the changes rapidly unfolding in the ocean, ocean observations and data should be considered on a par with critical infrastructure.

7.5 The second IOC *State of the Ocean Report*, was published in June 2024. The StOR presents the results of ocean-related scientific activities and analyses to describe the current and future state of the ocean, addressing physical, chemical, ecological, socioeconomic and governance aspects, focusing on the seven Outcomes of the Ocean Decade. A call for members of the advisory board for the 2026 StOR was issued in March 2025, and a first meeting of the advisory board focused on initiating planning for the 2026 report was held in May 2025.

7.6 IOC's data submission towards SDG Indicator 14.3.1 'Average marine acidity (pH) measured at agreed suite of representative sampling stations' collected inputs from an increased number of countries and stations (178 stations in 2021; 765 stations from 44 countries in 2025).

7.7 Ocean deoxygenation continues to threaten ocean health with approaches focused on reoxygenation proposed as a means of reducing the extent of low oxygen areas. The GO2NE working group convened experts in September 2024 to discuss the potential of approaches to reoxygenation to stop further deoxygenation, with the results of the workshop to be published in *Eos (Journal)*.

7.8 The portfolio of IOC activities aimed to conserve, restore and sustainably manage coastal blue carbon ecosystems for climate, biodiversity and economic benefits continues to grow following the demand of Member States. The IOC helps to coordinate the Blue Carbon Initiative (BCI, since 2010), the International Partnership for Blue Carbon (IPBC, since 2020), an initiative of Australia, and the High-Level Ambition Group on blue carbon (HILAG, since 2022), an initiative of France. The IOC was one of the proponents of a Global Ocean Decade Programme for Blue Carbon (GO-BC) in late 2021 and has been one of its Steering Committee members ever since. These activities were showcased to Member States during a dedicated side event to the 57th session of the IOC Executive Council in June 2024.

7.9 2Recognizing that Joint programmes between IOC, United Nations and other international organizations are important ways to leverage and enhance IOC activities to best serve society and that these programmes must be underpinned by timely and relevant agreements, a revised four-year memorandum of understanding for the Global Climate Observing System (GCOS) was negotiated with the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP) and the International Science Council (ISC). In addition, a memorandum of understanding was signed in April 2024 between UNESCO-IOC and FAO to formalise joint sponsorship of the Intergovernmental Panel on Harmful Algal Blooms (IOC-FAO IPHAB). In the context of an updated World Climate Research Programme Science and Implementation Plan, discussions are underway between UNESCO-IOC, WMO and ISC to update the 1993 co-sponsors agreement to ensure that it reflects the plan and is adaptable in the future. IOC as a co-sponsor of the World Climate Research Programme will host a meeting of the joint scientific committee at UNESCO HQ in May 2025.

7.10 The Global Ocean Observing System (GOOS) coordinates more than 8,700 ocean observing platforms across 13 global ocean observing networks, operated by 83 Member States (9 in Africa, 9 SIDS). Over 120,000 ocean observations are delivered to operational forecasting systems every day, as tracked through OceanOPS (GOOS IOC-WMO Operational Centre). The number of sustained biological and ecological observing programmes coordinated and tracked has risen to 638 across 71 Member States with 7 in Africa and 14 SIDS.

7.11 The Ocean Data and Information System (ODIS) is a federation of independent data systems including continental-scale data systems, national data systems as well as those of small organizations. ODIS enables individuals and organizations to share their metadata with the world, and enables better findability, accessibility, interoperability and reusability (FAIR) of ocean data. ODIS currently links 55 data catalogues or nodes from 45 partner organizations, enabling a sustainable, interoperable, and inclusive digital ecosystem for all ocean stakeholders that will continue to grow in the future.

7.12 As a joint effort between the Global Ocean Observing System (GOOS) and the IODE/Ocean Biodiversity Information System (OBIS), information was collected from 638 long-term active biological monitoring programmes and integrated into an online metadata platform (BioEco portal), which will be connected to ODIS, and become the infrastructure to monitor the status of the marine biological component of GOOS. OBIS continues to play a key role in this regard by hosting and providing an integrated, standardised and quality-controlled access point to the actual biological and ecosystem observations required to feed into ecosystem models, early-warning systems and indicator and assessment frameworks. OBIS now holds 136 million species observations and continues to grow with over 1 million records per month collectively provided by over 1,000 institutions from 99 countries.

7.13 A new partnership between the IOC, the Nippon Foundation and UNEP is developing a decadal implementation plan for '*A global ocean free from the harmful impacts of pollution by 2050'*. The concept of this collaboration was presented at the World Ocean Summit in Tokyo in March 2025.

7.14 In June 2023, the Assembly adopted the IOC *Capacity Development Strategy, 2023–2030* and established a group of experts on capacity development to develop an implementation plan. The OceanTeacher Global Academy (OTGA) continues to grow with an increasing number of training (more than 50 courses per year) and approximately 14,000 beneficiaries worldwide. OTGA, a network of 17 Regional and Specialized Training Centres remains active, and dozens of additional partners have joined the training initiatives over the past two years. With its ISO 29993:2017 accreditation as a Learning Service Provider, the IOC, through OTGA, certifies hundreds of training participants every year and guarantees a high-quality standardized Learning Management System. OTGA continues to support training needs and priorities of all IOC programmes and regions, and those of the Ocean Decade, promoting expanded training and lifelong learning opportunities in the fields of ocean sciences, services, and management.

7.15 With the IOC capacity development effort bolstered by NORAD funding, five activities were launched in 2024, designed jointly with regional and technical subsidiary bodies: (i) establishing Early Warning Systems for Harmful Algae Blooms in Africa; (ii) GLOSS-Africa (Phase 1–North Africa); (iii) support for strategic planning and capacity development for ocean observations under the auspices of GOOS-Africa; (iv) Biodiversity Data Hub for the High Seas; and (v) OceanTraining internships to enhance global human capacity related to the IOC mandate. New funding received in December 2024 will support the expansion of establishing early warning systems for harmful algal blooms in Africa, including the updating of data management infrastructure to support such systems, enabling linkages between blooms and deoxygenation to be determined and ensuring that observations associated with the systems contribute to GOOS.

7.16 IOC stepped up its efforts in Marine Spatial Planning (MSP) and launched in 2022 an updated joint MSProadmap with the European Commission, then resumed the MSPglobal project (core of the MSPglobal programme and co-funded by EU) in July 2023 with a regional focus on Western Africa and Western Pacific. In addition, MSPglobal 2.0 has co-developed other knowledge, tools and new online training on OceanTeacher Global Academy to help all Member States advance their MSP processes. Two publications on the engagement of Indigenous Peoples and Local Communities in MSP were published in July 2024, while four other toolkits on biodiversity, climate, spatial data and offshore wind engagement will be launched by June 2025. These tools were developed through co-designed global workshops with key organizations and experts from all continents and sea-basins. In total, MSPglobal 2.0 activities had involved 1,000 participants from 116 countries by mid-March 2025. This engagement has been realized through the organisation of global and regional MSPfora, trainings and workshops for representatives of national authorities, as well as for G20 representatives.

7.17 A new rapid assessment tool to facilitate national planning processes has been developed and piloted in seven countries in Africa, Western Pacific and Latin America and the Caribbean. Additional financial support from Government of Sweden (2024–2027) will continue to support this work, in addition to the renewed support of the European Commission's DG MARE for another two years. The work of IOC on MSP provides a solid basis for advancing the development of the draft IOC-wide Strategy on Sustainable Ocean Planning and Management (SOPM), and the new Decade Programme on Sustainable Ocean Planning supported by a range of international partners, which was launched at the Barcelona Conference. The IOC Working Group on SOPM met three times in 2025 to finalise the Draft Strategy and related Implementation Plan, to be presented to the 33rd IOC Assembly under agenda item 4.1.

How GESAMP's work has supported/fed into the work of IOC UNESCO

7.18 GESAMP is a built-in and long-term strategic mechanism for the IOC to increase capacity to address critical issues for which the IOC secretariat does not have resources, mandate or human capacity to address alone and where, not the least, better and more valuable knowledge

products can be delivered by inter-agency collaboration (WG 41, 43 and 44). GESAMP has also proven a valuable mechanism to address more targeted and time bound tasks (i.e WG 44). Expertise from GESAMP and its WG's, both the full WG reports as well as *ad hoc* involvement in ongoing work is a critical resource for the IOC to be able to respond adequately both to Member States and to UN processes (i.e WG 41). This applies both to WG co-sponsored and not cosponsored by IOC UNESCO (i.e WG 42). GESAMP Task Teams are of great value to clarify needs and potential for either more collaboration in GESAMP or follow-up by most suitable agency.

8 UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP)

8.1 The seventh session of the United Nations Environment Assembly (UNEA-7) will take place from 8 to 12 December in Nairobi, Kenya, on the theme "Advancing sustainable solutions for a resilient planet". The second part of the fifth session of the Intergovernmental Negotiating Committee to develop an international legally binding instrument on plastic pollution, including in the marine environment (INC-5.2), is scheduled to take place from 5 to 14 August 2025 at the Palais des Nations in Geneva, Switzerland. This year, the Republic of Korea hosted World Environment Day under the theme ending plastic pollution. As hosts, the Republic of Korea held highlight World Environment Day events on Jeju Island that brought together over 10,000 participants from across the region and beyond. June marked a defining moment for the global ocean agenda as the third United Nations Ocean Conference (UNOC3) that was co-hosted by France and Costa Rica in Nice, France. With over 14,000 delegates from 175 countries — including 75 heads of state — and 100,000+ civil society participants, the conference sent a clear message: the world is uniting to save our ocean. The Blue Economy Finance Forum, taking place just ahead of the UNOC3 opening, saw the launch of a new call to engagement by eight UN agencies, including UNEP, to co-design a One Ocean Finance Facility

8.2 UNEP played a pivotal role throughout UNOC3, launching the Ocean Investment Protocol with the UN Global Compact and the 30x30 Ocean Action Plan with the World Economic Forum and Friends of Ocean Action, and, amidst a rise in marine heatwaves, ocean acidification, and plastic pollution, the 24th Global Meeting of the Regional Seas Conventions and Action Plans was hosted by UNEP in Nice. The Regional Seas Programme – a true pearl of the UNEP family that is protecting our seas from these challenges, celebrated the 50th anniversary of the Mediterranean Action Plan (MAP), along with the 30thanniversary of the Post-Rio Barcelona Convention.

Global Environment Monitoring System for the Ocean and Coasts (GEMS/Ocean) [38]

8.3 GEMS Ocean continues to explore building capacity around ocean data through innovative initiatives of digital twins (DTOs) to model ocean scenarios and inform policy. From the successful hackathon and workshop for the Caribbean Sea Digital Twin prototype (CSDTp) in October 2023 in Aruba, using the MSP Challenge Tool developed by the Breda University of Applied Sciences (BUAS) another innovative workshop has been held last April for the five coastal countries within the Northern Mozambican Channel NMC region including Mozambique, Comoros, the United Republic of Tanzania, Seychelles and Madagascar, together with international partners.

8.4 Embedded in the wider workshop "Validation Workshop on Marine Spatial Planning Technical Guidelines and Innovative Tools for the Northern Mozambique Channel" the Northern Mozambique Channel Digital Twin prototype (NMCDTp) co-designing workshop, served as a pivotal initiative within the Western Indian Ocean (WIO) region's ongoing efforts to promote a sustainable blue economy and integrated ocean governance. The aim was to collaboratively explore the concept and framework of a Digital Twin for the Northern Mozambique Channel—a region of extraordinary ecological significance and critical socio-economic reliance. The workshop emphasized harmonizing national MSP processes while integrating cutting-edge digital solutions to enhance the understanding, management, and conservation of marine and coastal environments. This collective effort reflects a transformative approach to addressing regional challenges and unlocking the full potential of blue resources for sustainable development.

[38] https://www.unep.org/topics/ocean-seas-and-coasts/science-and-innovation/ocean-and-coastal-observations

Regional Seas Programme[39]

8.5 The 24th Global Meeting of the Regional Seas Conventions and Action Plans concluded with resounding success with participation from Ms. Inger Andersen, Executive Director of UNEP; H.E. Ms. Agnès Pannier-Runacher, Minister for Ecological Transition, Biodiversity, Forests, Sea and Fisheries of France; Executive Secretaries and Coordinators of the Regional Seas Conventions and Action Plans; representatives from Multilateral Environmental Agreements (MEAs), United Nations entities, and partners. The meeting marked a critical milestone for the Regional Seas Programme, delivering concrete outcomes that will guide its future direction and enhance its contribution to global ocean and coastal governance. These are:

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.1 the Regional Seas Strategic Directions (2026–2029). It was approved and final edits were discussed and implemented immediately;

.2 an official statement by the RSCAPs coordinators and executive secretaries was endorsed and submitted to the UNOC3 - Ocean Action Panel 8: Promoting and supporting all forms of cooperation, especially at the regional and sub regional level;

3. practical strategies were identified to strengthen partnerships and mobilize resources; and

4. the RSCAPs Vision and Roadmap towards the KM-GBF 30x30 MPA-OECM Target as an evolving document to support coordinated regional approaches toward global biodiversity commitments for KM-GBF Target 3.

Barcelona Convention

8.7 The Barcelona Convention and its seven Protocols adopted in the framework of the Mediterranean Action Plan (MAP) constitute the principal regional legally binding Multilateral Environmental Agreement (MEA) in the Mediterranean." ("Barcelona Convention and Protocols | UNEPMAP") The update on activities during the period under review include the following:

8.8 **EcAp Policy and Roadmap 2026-2035:** A revised EcAp Roadmap Policy, including IMAP enhancement, and the expected evaluation and revision of the European Union (EU)'s Marine Strategy Framework Directive (MFSD) will be presented for consideration at COP 24 in Egypt (Cairo, Egypt, 2-5 December 2025).

8.9 **2023 Mediterranean Quality Status Report (MED QSR):** The 2023 MED QSR includes dedicated chapters for most of the 11 Ecological Objective of IMAP, including for: Biodiversity (EO1), Non-Indigenous Species (EO2), Fisheries (EO3), Pollution (EO5, EO9), Coast and Hydrography (EO7, EO8), Marine Litter (EO10), and Underwater Noise (EO11).

8.10 **Reduction and prevention of marine litter and plastics: Progress** in reducing single use plastics (SUPs) is evident across the southern Mediterranean countries. Various countries such as Morocco, Lebanon and Algeria have developed roadmaps and implemented extended

[39] https://www.unep.org/topics/ocean-seas-and-coasts/regional-seas-programme

producer responsibility (EPR) schemes, while green public procurement and partnerships with hotels and restaurants in the Balkans aim to reduce SUP consumption.

8.11 **Reduction and prevention of sea-based marine pollution:** Two sub-regional Oil Pollution Contingency Plans were developed, to ensure better cooperation and coordination in the event of marine pollution from ships. These have been considered for final adoption during 2024.

8.12 **Reduction and prevention of land-based marine pollution: Updated** guidelines on discharge standards from desalination plants and sustainable desalination technologies have been approved, emphasizing current technologies, regulatory compliance, and decision support systems to aid policymakers and operators in sustainable practices. Implementing these measures aims to achieve a pollution-free and litter-free Mediterranean Sea and coast.

8.13 **Post-2020 SAPBIO:** During 2024-2025, SPA/RAC launched the mid-term assessment of the Post-2020 SAPBIO, focusing on startup activities. An international consultants' team has been hired to assist the center to achieve the evaluations process, the elaboration of the simplified monitoring tables for national and regional actions and the framework for the future assessment of the collective implementation planned for expected results for 2027 and 2030. The Main findings of the mid-term assessment focusing on the Post-2020 SAPBIO start-up activities and the Draft Monitoring Framework for the assessment of the collective implementation of the Post-2020 SPABIO were reviewed respectively as the working documents by the 17th meeting of SPA/BD Focal point who agreed on their submission to the Barcelona Convention CoP 24 (December 2025).

8.14 **Post-2020 MCPAs/OECMs Strategy:** The SPA/RAC has prepared the Draft guidance document on Other Effective area-based Conservation Measures (OECM) : identification and Criteria application in the Mediterranean, in accordance with the Barcelona Convention Post-2020 Regional Strategy on Marine and Coastal Protected Areas and Other Effective area-based Conservation Measures in the Mediterranean, Action A.3.1.6 Develop sectoral and other guidance, such as tools and templates, for applying OECM criteria and establishing processes for identifying OECMs. A pilot phase to test the draft Guidance with volunteer country(ies) will be launched before end of 2025, and that it will convene a dedicated webinar to present the document with the view of gathering additional feedback. The Guidance document will be then finalized considering the lessons learnt from the tests undertaken with the volunteer country(ies) and the recommendations from the webinar.

Sustainable Development

8.15 The Mediterranean Commission on Sustainable Development (MSSD) 2026-2035 represents a landmark achievement of the work of the Mediterranean Commission on Sustainable Development, confirming its visionary role in integrating socioeconomic and environmental aspects through priority objectives and concrete actions that represent a coherent framework for the multi-level stakeholders of the Mediterranean, ensuring a whole of society approach.

8.16 The MSSD 2026-2035 is fully aligned with 2025 global and regional important milestones related to the protection, conservation and sustainable use of marine environment and its resources: the 3rd UN Ocean Conference (UNOC-3, Nice, France, 9-13 June 2025) that gave renewed impetus to the acceleration of global efforts and mobilization of all actors towards the achievement of SDG 14; the Declaration of the Ministers of the Mediterranean endorsed during the UNOC-3 that renewed their commitment for a sustainable Mediterranean; the likely entry into force of the historic Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement); the EU Ocean Pact and the upcoming New Pact for the Mediterranean, providing integrated frameworks to strengthen policy coherence and a thriving blue economy for the Mediterranean region.

8.17 The flagship initiatives of the MSSD are the following:

MSSD Objective	Flagship Initiative
Objective 1 Address climate change with emphasis on adaptation to its impacts and promote Energy Security and Transition as a priority	Regional science-policy interface mechanism to prepare consolidated regional scientific assessments on climate change trends, impacts and adaptation and mitigation options (**MedEcc**)
	Launching of educational initiatives (e.g. Mediterranean ESD Network: Platform for collaboration among schools, universities, and civil societies Mediterranean Green Skills Program: Training for youth and women in sustainable business practices)
	Delivering 1TW of renewable energy capacity in the Mediterranean by 2030 (**TERAMED**) ("Teramedinitiative")
Objective 2 Improve health, productivity, restoration and resilience of the marine and coastal ecosystems	**Achieving 30 by 30 MPAs/ OECMs Targets** (Update of MEDFUND Flagship Initiative)
	Mediterranean Coast Day
	Promote the **IUCN Green list** standard in riparian states to assess the efficiency and effectiveness of parks managing bodies created (**IUCN Green list)**
	Promote the protection and conservation of **Seagrass/Posidonia Meadows** as crucial ecosystem (**Seagrass/Posidonia Meadows)**
Objective 3 Promote sustainable resource management, especially water, food security and systems through sustainable forms of rural development	Strategy for the Water-Energy-Food-Ecosystems Nexus (WEFE Nexus) in the Mediterranean Source to Sea continuum (**WEFE NEXUS**) ("Digital Transformation for advancing Water-Energy-Food-Ecosystems Nexus ...")
	Mediterranean Forest Initiative
Objective 4 Plan and manage sustainable, resilient Mediterranean cities	**Istanbul Environment Friendly City Award**
	Mediterranean **Network of Zero Net Cities**
	Sustainable **urban toolbox** for the Mediterranean (**MedUrbanTools)**
Objective 5 Accelerate transition towards sustainable, green, blue and circular economy and sustainable finance	Create and promote a Mediterranean business award for environmental innovation **(WeMedBusiness Award)**
	Sustainable blue tourism
Objective 6 Improve governance at all levels, cooperation and partnerships in support of resilience and sustainable development.	Encourage the adoption and implementation of the **Aarhus Convention**
	Women leadership for SDGs in the Mediterranean
	Youth involvement in MSSD decision process and implementation

MSSD Objective	Flagship Initiative
	Mediterranean Green Week
	Mediterranean Strategy on Education for Sustainable Development
	Observatory on Environment and Sustainable Development

8.18 The updated Mediterranean Strategy on Sustainable Development will be submitted for endorsement to COP24, in December 2025, and once validated by the meeting of the MCSD, planned to take place in June 2025.

Addressing climate change-related challenges

8.19 The initial phase of the RCCAF update process included a desk review of the MAP-relevant assessments, reports and findings from recent global and regional climate change developments and frameworks, complemented by consultation with the Members of the Mediterranean Commission on Sustainable Development (MCSD), MAP Components and MAP Partners.

8.20 The outcomes of this work have been presented during the Thematic Ad Hoc MCSD Meeting (Istanbul, Türkiye, 12-13 February 2025) as initial elements for the updated RCCAF. After this Meeting, the Secretariat, together with the MAP Components, have continued refining the text of the RCCAF, whose updated version has been further discussed by national experts on climate change during the regional Meeting on Climate Change Adaptation that took place in Istanbul, Türkiye, on 8-9 July 2025 that approved the RCCAF 2026-2035 for submission to the MAP Focal Points of September 2025 and then to the COP24 in December 2025.

8.21 The RCCAF 2026-2035 provides the directions and priorities to effectively act on climate change adaptation and accelerate implementation, while in parallel the role of national, local and subnational levels through the National Adaptation Plans (NAPs) and National Determined Contributions (NDC) are crucial to operationalize its implementation.

8.22 The newly introduced framework for monitoring and evaluation will allow a reinforced assessment of the RCCAF implementation and progress, thus better informing on revision needs in the future. In the Biennium 2024/2025 the Secretariat will work on the update of the 2016 Regional Climate Change Adaptation Framework for the Mediterranean Marine and Coastal Areas (COP19, Decision IG.22/6, Athens, Greece, 2016) to consider and embed new challenges, tools, nature-based solutions and pilot areas. This process will be coordinated with the MSSD revision process, mutually feeding each other.

Advocacy, awareness, education and communication

8.23 The UNEP/MAP-Barcelona Convention system responds to global developments and to emerging scientific knowledge." (“The Parliamentarian’s guide to protecting the Mediterranean Sea and coast”)

8.24 The Secretariat participated, with the formal status of Observer, in a few Steering Committee meetings of the WestMed initiative to promote Sustainable Blue Economy in the Western part of the Mediterranean.

8.25 The factsheets of the Flagship Initiatives of the Mediterranean Strategy for Sustainable Development (MSSD) are being updated, strengthening their linkage to relevant MSSD indicators and helping convey evidence-based policy messages.

The Coordinating Body on the Seas of East Asia (COBSEA)

8.26 COBSEA supports countries in addressing priority issues per the East Asian Seas Action Plan and the Strategic Directions for 2023-2027. COBSEA's current programmes focus on Marine Pollution, Marine and Coastal Ecosystems Management, and Climate Action, aligning with its 2023-2027 Strategic Directions. Update of activities during the period under review include the following:

Marine Pollution – Marine Litter and Plastics

8.27 In partnership with the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO), COBSEA has conducted baseline surveys of marine litter in the environment in five countries, has provided regional and national training on monitoring and assessment methods, and is preparing a regional assessment of marine litter status and trends informed by on-the-ground data. Harmonized and robust monitoring of plastic pollution in the environment over time will inform evidence-based decision making and allow countries to track progress against national policies, regional frameworks, and global commitments. COBSEA will continue to support monitoring and assessment and regional knowledge sharing, supported by projects such as 'MA-RE-Design' (funded by the Government of Germany) and partnerships such as with the Asian Development Bank.

.1 The Regional Capacity Center for Clean Seas (RC3S) in Bali, Indonesia, continues to serve as COBSEA's Regional Activity Centre (RAC) on marine litter and hosts the COBSEA Regional Node of the Global Partnership on Plastic Pollution and Marine Litter (GPML), supporting implementation of the Regional Action Plan on Marine Litter (RAP MALI). Regional Node provides access to a research database with over 700 peer-reviewed publications from the ASEAN+3 region, addressing knowledge and data gaps and fostering multi-stakeholder coordination toward regional and global goals. In 2025, COBSEA is undertaking phased development of the Node to better meet country needs, based on consultations with COBSEA WGML and UNEP GPML. This includes maintaining the database and strengthening science-policy dialogue through the existing regional research network.

.2 COBSEA continues to support participating countries in the Intergovernmental Negotiating Committee (INC) to develop an international legally binding instrument on plastic pollution. The COBSEA WGML currently serves as a regional preparatory platform for INC Meetings. The 6th (October 2024) and 7th (June 2025) WGML Meetings included briefings by the INC Secretariat, discussions on regional priorities, and the drafting of joint regional statement. The COBSEA Secretariat has facilitated the development and submission of these statements on behalf of WGML to INC-2, INC-3, INC-4, INC-5.1, and potentially INC-5.2, reflecting shared regional priorities and options for consideration.

8.28 **Nutrients**: In IGM25.2, COBSEA presented the draft strategy and action plan on "Reducing Nutrient Excess in the Watersheds and Seas of East Asia" (RENEWSEAS) to address nutrients and wastewater pollution in the region. A subsequent webinar was held in March 2023 to continue discussions on the strategy and action plan, which included presentation by potential partners such as the International Nitrogen Initiative and the Global Eutrophication Watch, as well as presentation by UNEP Nutrients and Wastewater Teams. RENEWSEAS will be presented at the 26th IGM with hopes of its eventual adoption.

8.29 COBSEA and the Thai Pollution Control Department were selected as part of the Global Environment Facility Clean and Healthy Oceans Integrated Programme (CHO-IP). Worth USD3.5M, the child project underwent its Project Preparatory Grant (PPG) stage from 2024-2025 to develop the final Project Document. The project aims to address nutrients pollution leading to eutrophication in the coastal waters of Thailand through best practices, policy implementation, capacity building, and data and monitoring. The Thai CHO-IP is anticipated to start implementation in late 2025.

8.30 **Marine and Coastal Ecosystems**: COBSEA participating countries adopted the COSBEA Marine and Coastal Ecosystems (MCE) Framework in April 2023, guiding COBSEA's efforts in relation to marine and coastal biodiversity, conservation, and management, particularly to focus in supporting the achievement of SDG targets on marine and coastal conservation as well as the Kunming-Montreal Global Biodiversity Framework. The MCE Framework was developed based on interviews, consultations, review of previous COBSEA activities, and global priorities. Within the overarching theme of Blue Economy, activities include marine and coastal spatial planning, marine protected areas including OECMs, and the marine and coastal habitat conservation and restoration. The MCE Framework further established the Working Group on Marine and Coastal Ecosystems. During the Twenty-sixth Intergovernmental Meeting of COBSEA held in October 2024 in Siem Reap, Cambodia, the first biennial workplan towards the implementation of the MCE Framework was approved.

8.31 In the implementation of the MCE Framework, COBSEA is working closely with the UNEP/GEF South China Seas Strategic Action Programme (SCS-SAP) Project. Joint initiatives including the East Asian Seas Regional Collaborative Network on MPAs, The First Asian Dialogue on Seagrass and Dugong, as well as upcoming efforts for a knowledge management platform and financing facility.

8.32 **Other COBSEA initiatives include training** on coral reef monitoring protocols in partnership with the Global Fund for Coral Reefs and UNEP HQ, as well as guidance document on OECMs to be disseminated through a regional workshop.

The Cartagena Convention-Caribbean Environment Programme[40]

8.33 The update on activities during the period under review include the following:

Marine Pollution

.1 The Cartagena Convention Secretariat in collaboration with the Land Based Sources (LBS) and Specially Protected Areas and Wildlife (SPAW) Regional Activity Centers held a Joint Monitoring and Assessment Open Ended Working Group (OEWG) and Sargassum Working Group Meeting in Trinidad and Tobago on March 18-20, 2025. The joint hybrid workshop was a key initiative aimed at enhancing regional coordination and integration between the (Assessment and Management of Environment Pollution) AMEP and SPAW sub-programmes of the Cartagena Convention to address the challenges posed by Sargassum inundations and nutrient pollution. A key outcome of the workshop was the identification of joint activities for inclusion in both the Sargassum Working Group's Action Plan and the Monitoring and Assessment OEWG Work Plan, strengthening the integration of thematic linkages between nutrient pollution, eutrophication, and marine biodiversity conservation. ("Joint Monitoring and Assessment Open Ended Working Group and ... - UNEP);

.2 In collaboration with the UNEP's Source to Sea Pollution Unit, the Cartagena Convention Secretariat is implementing a Water Quality Capacity Development Project in the Wider Caribbean Region funded by the United States Environment Protection Agency. The project which commenced in 2024 seeks to build capacity at the regional and national levels to scale up sustainable water quality monitoring programmes and management and prevention of pollution. "Through the support of the project a Water Quality Needs Assessment Survey was administered to Contracting Parties to determine priority needs to inform a Learning Management System for water quality capacity development." ("Nineth Intergovernmental Meeting on the") Responses were received from 22 individuals located in 19 countries in the Wider Caribbean Region;

[40] https://www.unep.org/cartagena-convention

.3 A regional network on city-level collaboration on circular plastics was launched in Cartagena, Colombia on March 26, 2025, as part of the Global Environment FaciliGEF LAC Cities project. The project aims to reduce marine plastics and plastic pollution by facilitating circular actions at the city-level to accelerate the transition to a circular economy at regional level. (“Nineth Intergovernmental Meeting on the”) (“Nineth Intergovernmental Meeting on the”) (“Nineth Intergovernmental Meeting on the”) It directly responds to national, regional and global marine litter and plastics-related action plans, resolutions and commitments such as the Regional Action Plan for Marine Litter (RAPMaLi) for the Wider Caribbean Region; and

.4 With the support of the GEF CReW+ Project and in collaboration with the Regional Activity Center Institute of Marine Affairs (RAC IMA) and the Caribbean Water and Wastewater Association (CWWA) an online workshop on approaches to wastewater management titled “Exploring innovative and low -cost management alternatives and wastewater reuse” in February 2025. In April 2025 the CWWA also facilitated a technical training session entitled "Strengthening, Monitoring and Reporting – SDG 6 (Clean Water and Sanitation)" targeting water utility and Regulatory personnel.

Global Environment Facility (GEF) Lartin American and Caribbean (LAC) Cities

Circular Economy Policies and Financial Instruments

8.34 The GEF LAC Cities project continues to support city-level governments in adopting or improving circular economy policies to reduce marine plastics and plastic pollution. As part of these efforts, a global report was developed on best practices for policy instruments, which included recommendations specifically adapted to the Latin America and the Caribbean (LAC) context. In parallel, a global report on financial instruments was also produced, providing LAC-specific guidance to help cities in Latin America and the Caribbean to better fund and sustain circular economy initiatives. Bilateral consultations with the 6 six cities forming part of the project have also been undertaken, providing targeted technical support.

Private Sector Innovations and Practices

8.35 In efforts to foster private sector adoption of circular economy innovations, a report on global best practices in upstream business innovations—emphasizing elimination, reduction, and reuse—was prepared to inform local actions in the project cities. A regional session was also held with focal points from the six implementing cities to exchange ideas and discuss upstream solutions for their local context.

8.36 Additionally, a second global report, highlighting the best practices in collection and recycling interventions for cities, was produced again offering tailored recommendations for the LAC context. A corresponding regional session was held to present the best practices and offer an opportunity for exchange and feedback with city level focal points.

Inter-City Network and Regional Cooperation

8.37 Under the GEF LAC Cities project, Component 3 aims to advance regional cooperation through the establishment of an Inter-City Network. Consultations were held with the six project cities to review and agree upon a framework document guiding the network’s structure and operations. Through these consultations, city representatives reached consensus on the vision, mission, objectives, governance structure, and operational modalities of the Network. The framework document was approved on a no-objection basis and was officially launched during the Project Steering Committee meeting on March 26 in Cartagena. The Network has since held its first meeting to define its area of focus for the coming years, expecting to enhance collaboration and shared learning amongst regional cities working to address marine plastic pollution.

Communications, Gender, and Knowledge Sharing

8.38 Under the GEF LAC Cites project, Component 4 aims to improve regional and global awareness, knowledge, and capacity. A project website was developed under the umbrella of the Cartagena Convention Secretariat site. A communication strategy for the project was also created in consultation with the Project Steering Committee inclusive of respective city focal points. Additionally, a draft Gender Action Plan was formulated, alongside ToRs for hiring a gender consultant, demonstrating the project's commitment to inclusive and equitable implementation.

Prevention of Marine Litter in the Caribbean Sea (PROMAR)

Monitoring and Data Collection

8.39 In Work Package 1, the PROMAR project established monitoring systems to track marine litter entering aquatic environments. Implementing partners in the five participating countries – Suriname, Guyana, British Virgin Islands, Trinidad & Tobago and St. Kitts & Nevis -- initiated marine litter characterizations to build a robust baseline. This foundational data will guide future interventions and enable ongoing assessment of progress in reducing marine pollution.

Circular Economy Pilots at Demonstration Sites

8.40 Work Package 2 focuses on implementing circular economy solutions at selected demonstration sites across the five countries. Partners successfully identified their pilot locations, where practical, scalable initiatives will be carried out. These pilots will serve as testing grounds for innovative approaches to reducing waste, supporting the transition toward more circular and sustainable local economies.

Strengthening Policy Dialogue and Political Capacity

8.41 Under Work Package 3, the PROMAR project emphasizes strengthening the capacities of political partners and fostering dialogue around sustainable waste management policies. National policy dialogues were convened in four of five participating countries (with the fifth slated for Q4 2025), offering opportunities for knowledge sharing and stakeholder engagement. Ongoing technical discussions are being held to explore the introduction or strengthening of Extended Producer Responsibility (EPR) systems and other context-relevant policy instruments.

Stakeholder Awareness and Behavioral Change

8.42 Work Package 4 addresses stakeholder awareness and behavior change. A Knowledge, Attitudes, and Practices survey (KAP) was conducted among key stakeholders in each country, providing critical insights into perceptions and behaviors related to waste management and marine litter. The survey results will be used to design targeted communication strategies that foster stakeholder engagement and support lasting behavioral shifts.

Nairobi Convention[41]

8.43 The update on activities during the period under review include the following:

.1 **Conservation and Management of Blue Carbon Ecosystems**: The Convention is keen on addressing the accelerating degradation of coastal and marine resources in the Western Indian Ocean (WIO) through the sustainable management and use of the marine and coastal environment. Scaling up ocean biodiversity protection, efforts to address climate change and pollution and degradation, with a focus on building sustainable blue growth in the WIO. The sustainable management of Blue Carbon Ecosystems (BCEs) is central to this transformation. The Convention convened

[41] https://www.nairobiconvention.org/

Focal Points and regional experts to discuss progress made in the conservation and management of BCEs in the region and ensure alignment with global/policy commitments. The meeting recommended the development of a regional Biodiversity Framework for the region; Strengthened the need for a regional vision and framework on ratification and implementation of the BBNJ Treaty for the region considering the connectivity of waters within national jurisdiction and the high seas; as well as development of a framework for sustainable financing for the conservation and management of Blue Carbon Ecosystems in the region.

.2 **Marine Spatial Planning**: The Nairobi Convention has developed a Regional MSP Strategy for the WIO to promote harmonisation of MSP processes between national government, local government and municipalities, and to enhance national capacities for MSP implementation. In collaboration with partners, the Nairobi Convention convened capacity development workshops on MSP to strengthen national institutions in implementing MSP at the national and local levels.

.3 **Ocean Governance and Science to Policy**: Contracting Parties and partners have developed a Regional Ocean Governance Strategy for the WIO region. The Convention collaborated with UNDOALOS in convening a workshop which provided an overview of the legal and institutional frameworks for the management of oceans at the global, regional, and national levels as well as of the United Nations Convention on the Law of the Sea, and its related agreements. The workshop also reinforced the knowledge and capacities in regional priorities such as the science-policy interface, integrated ocean governance frameworks, maritime transport, blue economy and finance, and marine spatial planning. The discussions enhanced the expert's knowledge to promote domestication of the Regional Ocean Governance Strategy, as well as policy reforms and harmonisation across the region.

.4 **Familiarization on the Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ) Agreement**: In responding to the Nairobi Convention Decision CP11/3 regarding the acceleration of the ratification process of the BBNJ Agreement, the Convention in collaboration with partners organised a workshop to familiarizing experts from the region with the provisions, obligations and benefits of the BBNJ Agreement, assess capacity-building needs with a view to supporting eventual ratification, and strengthen the region's and continent's wider ability to articulate its needs and priorities regarding the BBNJ Agreement. The Convention is working with partners in the development of a common regional vision and framework for the implementation of the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction.

.5 **Ocean Acidification**: The Convention has supported the development of a draft regional ocean acidification action plan and a 10-year implementation plan for the Western Indian Ocean countries.

.6 **Regional Ecosystem Monitoring in the Western Indian Ocean (WIO) Large Marine Ecosystems (LMEs)**: a Regional Framework for Ecosystem Monitoring in the Western Indian Ocean. The draft framework aims to provide a standardized approach on the development of national activities to support ecosystem monitoring in the region. The Framework identifies gaps and opportunities in the national and regional capacity to establish realistic monitoring strategies, as well as possible partnerships and collaborations in coastal and marine ecosystem monitoring to develop the WIO ecosystem monitoring framework. The framework identifies key national institutions mandated with ecosystem monitoring and implementation.

.7 **Regional Contingency Plan for Preparedness and Response to Major Marine Pollution Incidents in the Western Indian Ocean**: The risk of major oil spills continues to be a significant threat to the fragile ecosystems and coastlines of littoral

States around the world. By ratifying these intergovernmental agreements, countries in the WIO region have committed to the development of national and regional plans and procedures in readiness for possible oil spills. During the 11th Conference of Parties, the Contracting Parties to the Nairobi Convention requested the Secretariat in collaboration with partners to finalize and implement the Regional Contingency Plan for Preparedness and Response to Marine Pollution Incidents within the Region (Decision CP 11/12.5). Regional meetings have been organised to discuss the RCP and its implementation plan and agree on steps towards adoption of the regional contingency plan at the 12th COP.

.8 **Water Quality**: The Convention supported development of a Regional Strategic Framework for Coastal and Marine Water Quality Management (C&MWQM) to support countries in integrating C&MWQM into national frameworks. To facilitate mainstreaming at country-level, the Nairobi Convention Secretariat collaborated with South Africa's Council for Scientific and Industrial Research (CSIR) to deliver a week-long training and capacity development workshop, focusing on the development and implementation of C&MWQM at national level, guided by the region's strategic framework.

.9 **Validation of the African Union Africa Ocean Governance Strategy (AUOGS) and its Implementation Plan and the contribution towards the Ocean Resolution adopted at AMCEN-20**: Supported the Regional Office for Africa in the validation of African Union Africa Ocean Governance Strategy and its Implementation Plan which was adopted at the 20th Ordinary Session of the African Ministerial Conference on the Environment (AMCEN-20). The Strategy provides the continent with an overarching framework that will facilitate and coordinate efforts, strengthen institutional governance, mobilise financial resources, and foster regional.

10. **Promoting Partnerships in the WIO region:** The Nairobi Convention convened a meeting of the Consortium for the Conservation of Coastal and Marine Ecosystems in the Western Indian Ocean (WIO-C) members. The consortium strengthens regional action for marine and coastal sustainability, by fostering resilient partnerships to address emerging challenges, empowering NGOs to drive meaningful change aligned with the Nairobi Convention, creating collaborative platforms for ecosystem management, and developing integrated strategies for sustainable coastal and marine environments through enhanced governance and knowledge sharing.

Ecosystems Degradation and Pollution: 30th Anniversary of the GPA[42]

8.44 As the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) celebrates three decades of safeguarding the marine environment from land-based pressures, UNEP warmly acknowledges GESAMP for contributing evidence base that supports the GPA, particularly the three global partnerships (Global Partnership on Plastic Pollution and Marine Litter (GPML), Global Partnership on Nutrients Management (GPNM) and the Global Wastewater Initiative (GWWI) of which UNEP provides secretariat services to. Celebrating the GPAs 30 years since its inception, UNEP looks forward to deepening this collaboration so that GESAMP's independent expertise continues to support and strengthen the GPA's mandate. IOC-UNESCO and UNEP are proposing a new working group of GESAMP on ocean pollution which can build on the legacy of previous relevant GESAMP work.

Plastic pollution and marine Litter and the GPML

8.45 From 11–13 March 2025, UNEP organized a GPML Community of Practice (CoP) Workshop on the Harmonization of Monitoring and Assessment of Plastic Pollution. The event brought together key experts from governments, intergovernmental organizations (incl. IAEA, FAO, UNCTAD), and academia to identify Key Performance Indicators (KPIs) across the plastic

[42] https://www.unep.org/topics/ocean-seas-and-coasts/ecosystem-degradation-pollution

life cycle for comprehensive progress measurement and improved data comparability. Existing KPIs and ongoing monitoring programmes were reviewed according to plastic life cycle stages: (1) plastics in the economy (production, trade, consumption), (2) plastic waste management, and (3) plastics in the environment.

8.46 The GESAMP *Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean* were presented to reflect recent advancements in environmental plastics monitoring. Priority KPIs identified for measuring plastics in the environment include coastal macro litter and floating micro litter, selected for the presence of existing monitoring programmes and cost-effective data collection methods. Floating macro litter and seafloor macro litter were also noted as important indicators requiring further focus. Recommended areas for methodological harmonization include standardized definitions for morphology, size classifications, and units of measurement (e.g., items per square meter for coastal macro litter). Additionally, harmonizing plastic product type categories between environmental monitoring and waste composition surveys was recommended to generate evidence on non-recyclable plastics, which could inform future legislation.

Strengthening data for national action on plastics

8.47 UNEP continued technical assistance to countries to apply the stepwise country workflow for evidence-based national action plans/strategies on plastic pollution, resulting in draft national plans in 8 countries to date (South Africa, Mauritius, Senegal, Côte d'Ivoire, Guinea, Togo, Cambodia, and the Solomon Islands) and 2 validated plans in Trinidad and Tobago and Ecuador for consideration for adoption. The stepwise workflow in the Global Plastics Hub was piloted with funding from the US Department of State in 19 project countries, building on previous technical support including in Mexico and Uganda, demonstrating the effectiveness and replicability of the approach for delivering robust national plans. GESAMP played a critical role in user consultations, informing guidance and development of the workflow and conceptualization of national source inventories to guide data-driven national plans.

8.48 The GPML convened a hybrid Multi-stakeholder Event in Busan, Republic of Korea, on 2 December, with over 238 participants, including representatives from FAO, IAEA and UNEP which enabled participants to share resources, solutions, opportunities for cooperation on plastic pollution, and ideas for further strengthening and expanding the GPML and its Global Plastics Hub. Capacity building webinars on priority topics were held throughout the year, including a webinar on "Leveraging the GPML Digital Platform for Sustainable Action on Plastic Pollution and Marine Litter" on 2 October 2024, with 175 participants from 33 countries.

Nutrient Management and the Global Partnership on Nutrients Management (GPNM)

8.49 The UNEP Working Group on Nitrogen was established following UNEA resolution 4/14 to address the tasks outlined in the resolution. With the adoption of UNEA resolution 5/2, the scope of the Working Group was expanded to facilitate the implementation of both resolutions and to enhance the engagement and ownership of their implementation by Member States and stakeholders.

8.50 Since its inception in 2020, the Group has convened seven technical meetings, with the most recent held virtually on 1–2 July 2025. This session advanced the development of national action plans (NAPs) and a global roadmap for reducing nitrogen waste by 2030. Monitoring of nutrient pollution, nitrogen financing and synergies building among MEAs and partners have also been highlighted in the meeting.

8.51 By the seventh meeting, UNEP had received requests from twelve countries for support in developing national action plans. In 2024 and 2025, UNEP has supported Sri Lanka and Trinidad and Tobago in developing national action plans on sustainable nitrogen management. An assessment on nitrogen pollution has been conducted in these two countries. Monitoring of nitrogen pollution has been highlighted in the action plans. The national action plans have been submitted to respective Cabinets of the countries for approval.

8.52 The Global Partnership on Nutrient Management (GPNM) has continued to provide technical support to the Working Group through information-sharing, technical webinars between meetings, organizing informal expert meetings, and supporting Member States by sharing existing information and knowledge.

8.53 During the intersessional period, the GPNM organized a series of webinars and events to support the Working Group's discussions:

.1 “Assessment of Nitrogen Fluxes, Impacts and Solutions in South Asia” on 28 May 2025;

.2 Webinar on “Development of a National Action Plan on Sustainable Nitrogen Management: Lessons learned from Trinidad and Tobago” on 16 April 2025;

.3 Webinar on “Nutrient recycling with an emphasis on phosphorus recovery” on 15 April 2025. The webinar shared best practices on recovering phosphorus; and

.4 Webinar on “Global Nitrous Oxide Assessment: Key messages” on 19 December 2024.

8.54 Additionally, during the Bonn Climate Change Conference SB62, a workshop titled ““Sustainable Nitrogen Management: A Way Forward for Climate, the Environment and Food Security”” was organized on 16 June 2025, by Compassion in World Farming with the support of UNEP.

8.55 UNEP co-organized, with GPNM and GWWI partners, two side events at the 29th Conference of Parties to the United Nations Framework Convention on Climate Change (COP29) in Baku, Azerbaijan. The first one, titled "Sustainable Nitrogen Management: Collaborative Solutions for Climate Action, Environment and Food Security", was organized on 21 November 2024 at the Pakistan Pavilion. The second side event, titled "From Wastewater Treatment Plants to Resource Recovery Plants: Raising the ambition for NDCs 3.0", took place on 18 November 2024 at the Swedish Pavilion.

8.56 A side event titled “Game-Changers for the Global Biodiversity Framework: Ensuring success where the SDGs have not been delivered”, was organized at the Sixteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 16) by the International Fertilizer Association in cooperation with UNEP, at Cali, Colombia on 25 October 2024. These events facilitated the dissemination of technical findings, best practices, and policy innovations, contributing to the global nitrogen science-policy interface.

Wastewater and the Global Wastewater Initiative (GWWI)

8.57 UNEP through the Wastewater team/GWWI continues to provide support in the implementation of the UNEA3 and UNEA4 resolutions on water pollution, marine litter and microplastics, protection of the marine environment from land-based activities, sustainable nitrogen management and other resolutions, including the recently adopted UNEA 6 resolutions on water policies and ocean governance.

8.58 UNEP, in collaboration with UN-Habitat, supported coastal water villages of Borneo on tackling wastewater, nutrient pollution and lack of sanitation provision. The installation of decentralized wastewater treatment systems was finalized together with two spin-off activities – a fish fair-trading platform and an eco-homestay project – supporting income generation for the local community. As a result, over 300 students from the community have access to improved sanitation and the amount of untreated wastewater discharged into the marine environment is reduced. A final workshop will be organized in July 2025.

8.59 UNEP, in collaboration with WHO, with the support EU DG HERA organized a webinar titled “Introduction to Wastewater and Environmental Surveillance: Public Health and Ecosystem

Protection in Africa" with 143 participants from across the globe. Presentations on the Wastewater Surveillance for Africa Initiative introduced monitoring station requirements, sampling protocols and data management systems to strengthen national capacity for water quality monitoring. Additionally, the National Institute for Communicable Diseases (NICD) presentation on disease surveillance using wastewater demonstrated practical applications for reducing untreated discharges and supporting the 2030 target of halving untreated wastewater reaching water bodies. Furthermore, a case study on Uganda's environmental perspective showcased integrated water resources management approaches and climate-resilient surveillance tools for addressing freshwater pollution. Interactive sessions addressed analytical and technical requirements for water quality testing, including emerging pollutants and pathogen detection methodologies impacting human and environmental health.

8.60 With support from the European Union Health Emergency Preparedness and Response (EU HERA), UNEP, in collaboration with WHO, under the Wastewater Surveillance for Africa Initiative advanced regional capacity for ecosystem and public health monitoring under the One Health approach. Two regional workshops in Southern Africa and Eastern Africa in April and May 2025 engaged 26 countries and over 100 stakeholders, contributing to a harmonized approach and capacity roadmap for wastewater and environmental surveillance in Africa. Additional training and pilot activities are planned for the second half of 2025, including at key transport hubs.

8.61 UNEP and GWWI partners, in their ongoing efforts to advocate and raise awareness for wastewater as a solution for climate mitigation and adaptation, organized a webinar on 4 December 2024 to highlight the untapped potential of wastewater to tackle the challenges of climate change, food and water security and the need to include sustainable wastewater management, especially resource recovery, in the Nationally Determined Contributions (NDCs) for countries to accelerate action towards achieving their climate goals.

Basel, Rotterdam, and Stockholm Conventions[43]

8.62 The Basel, Rotterdam, and Stockholm (BRS) conventions continue to play a critical role in preventing marine and coastal pollution from hazardous chemicals and wastes. By promoting sustainable production and consumption, environmentally sound waste management, and strengthened regulatory controls, the Conventions contribute to minimizing releases of hazardous substances—including persistent organic pollutants (POPs) and plastic additives—and wastes into the environment.

8.63 The BRS Secretariat works actively with the GESAMP, whose scientific assessments are essential to advancing the goals of the Conventions. The Secretariat contributes to GESAMP working groups addressing the sources, fate and effects of plastics and microplastics, sea-based sources of marine litter, and the interface between climate change and marine contaminant impacts. This collaboration helps ensure that the implementation of the BRS Conventions remains grounded in the latest scientific evidence and responsive to evolving environmental challenges.

8.64 At their 2025 meetings, held from 28 April to 9 May in Geneva, the conferences of the Parties to the BRS Conventions adopted a few decisions relevant to the work of GESAMP, particularly regarding source-to-sea pollution, the management of plastics and POPs, and the regulation of other hazardous chemicals.

Basel Convention

8.65 The seventeenth meeting of the Conference of the Parties to the Basel Convention adopted decisions related to technical guidelines on the environmentally sound management (ESM) of waste containing POPs, e-waste, waste lead-acid and other batteries, used and waste pneumatic tyres, and mercury wastes (decisions BC-17/3 to BC-17/7). Parties also advanced work on determining low-POP content values and enhancing capacity-building for the implementation

[43] https://www.brsmeas.org/

of the prior informed consent (PIC) procedure, which is essential for controlling the transboundary movements of hazardous and other wastes.

8.66 In decision BC-17/11, the Conference of the Parties to the Basel Convention agreed to advance work on plastic waste by inviting submissions on the implementation and impacts of the plastic waste amendments, requesting the Secretariat to prepare a draft report by October 2026, providing capacity-building and technical assistance, and updating relevant technical guidelines. Rotterdam Convention.

8.67 The twelfth meeting of the Conference of the Parties to the Rotterdam Convention decided to list two additional chemicals in Annex III, thereby subjecting them to the PIC procedure: carbosulfan (a pesticide) and fenthion (a severely hazardous pesticide formulation) (decisions RC-12/3 and RC-12/4). These listings enhance Parties' ability to make informed decisions regarding imports of hazardous chemicals, including those that may impact the marine environment.

Stockholm Convention

8.68 At its twelfth meeting, the Conference of the Parties to the Stockholm Convention adopted decisions to list one pesticide and two new groups of industrial chemicals in Annex A for elimination: chlorpyrifos, medium-chain chlorinated paraffins (MCCPs), and long-chain perfluorocarboxylic acids (PFCAs), their salts and related compounds (decisions SC-12/9, SC-12/10, SC-12/12). The Conference of the Parties also amended Annex A to include an additional specific exemption for UV-328, a plastic additive (decision SC-12/14).

8.69 Further decisions were adopted to strengthen best available techniques and best environmental practices (BAT/BEP) (decision SC-12/5), advance the work of the POPs Review Committee (decision SC-12/8), and improve the global monitoring plan for POPs (decision SC-12/21).

8.70 The POPs Review Committee also prepared a report on options for identifying persistent organic pollutants in stockpiles, products, and articles in use, as well as in wastes, supporting transparency and traceability throughout the chemicals life cycle.

Contribution to International Plastics Governance

8.71 In line with UNEA resolution 5/14 and the decisions adopted by the Conferences of the Parties in 2025, the BRS Secretariat continues to contribute actively to the intergovernmental negotiating process for a legally binding instrument on plastic pollution, including in the marine environment. Key contributions include the Basel Convention's technical guidelines on plastic waste, the publications of the Plastic Waste Partnership, and reports such as Global governance of plastics and associated chemicals and Addressing chemicals of concern in plastics through multilateral environmental agreements, and the Plastic Waste Inventory Toolkit.

8.72 A comprehensive map of BRS technical assistance projects addressing plastic pollution, supported by the European Union and the Governments of Canada, France, Germany, Japan, Netherlands, Norway, Sweden, Switzerland, and the United States, is accessible via the Basel Convention website.