International Atomic Energy Agency (IAEA)

IAEA Input to 2025 SG report on oceans and the law of the sea (79/144)

Second part

INTRODUCTION

Through its Marine Environment Laboratories in Monaco, the International Atomic Energy Agency (IAEA) remained committed to assisting its Member States in implementing and advancing nuclear and isotopic tools and techniques for monitoring coastal and marine environments. These efforts include assessing the impact of human activities on marine ecosystems and resources. Additionally, the IAEA provides guidance based on its Safety Standards for regulating the release of radioactive effluents into the marine environment. This guidance supports environmental monitoring and surveillance of nuclear facilities, as well as the assessment of radiological impacts on both the public and marine flora and fauna.

The IAEA Marine Environment Laboratories are a unique asset within the UN system. As the sole UN Agency with marine laboratories, the IAEA supports Member States in addressing various marine environmental challenges. These include meeting nationally identified targets under Sustainable Development Goals (SDG) 13 (Climate Action) and 14 (Life Below Water), as well as aligning with the SAMOA Pathway for Small Island Developing States (SIDS). The IAEA's support extends to the implementation of the 2030 Agenda, with a specific focus on SDG targets such as 14.1 (pollution), including 14.1.b (plastic pollution). Furthermore, the IAEA Marine Environment Laboratories actively engage with SDG 14.3, which addresses ocean acidification. The IAEA's Ocean Acidification-International Coordination Centre (OA-ICC) serves as an official partner of the UN Decade of Ocean Science for Sustainable Development.

In addition, the IAEA assists Member States in fulfilling their obligations under global Conventions. These include the Stockholm Convention on Persistent Organic Pollutants, the Minamata Convention on Mercury, and the Basel Convention, which sets controls on transboundary movements of hazardous wastes. The IAEA also collaborates with UN Environment Programme (UNEP) on pollutants related matters and coordinates closely with other UN Agencies with mandates related the environment, through the UN Environmental Management Group (EMG) and the UN-Oceans platform.

The IAEA pursued its efforts under the NUclear TEChnology for Controlling Plastic Pollution (NUTEC Plastics) initiative launched in 2021. This initiative supports Member States in integrating nuclear techniques to address plastic pollution challenges. The initiative focuses on research, development, capacity building, and the implementation of nuclear techniques to address both, (1) the upcycling aspects of plastic pollution which are addressed by reducing plastic waste volumes through the use of radiation technologies to improve plastic recycling methods and to develop bio-based alternatives to single use petroleum-based plastics, and (2) the assessment, monitoring and better understanding of the abundance and impact of marine plastic pollution.

Related to §§ 10, 11, 12, 13, 14, 15 of resolution 79/144.

10. Recognizes the importance of assisting developing States, in particular the least developed countries, landlocked developing countries and small island developing States, as well as coastal African States, in implementing the Convention, urges States, international financial institutions, donor agencies, intergovernmental organizations, non-governmental organizations and natural and juridical persons to make voluntary financial or other contributions to the trust funds, as referred to in resolutions 55/7 of 30 October 2000, 57/141, and 64/71 of 4 December 2009, established for this purpose, and expresses its appreciation to those that have contributed;

11. Emphasizes that capacity-building is essential to ensure that States, especially developing countries, in particular the least developed countries, landlocked developing countries and small island developing States, as well as coastal African States, are able to fully implement the Convention, benefit from the sustainable development of the oceans and seas and participate fully in global and regional forums on ocean affairs and the law of the sea, including in relation to the protection of the marine environment and the conservation and sustainable use of marine resources;

12. Recognizes the need to build the capacity of developing States to raise awareness of and support the implementation of improved waste management practices, noting the particular vulnerability of small island developing States to the impact of marine pollution of all kinds, in particular from land-based activities and marine debris and nutrient pollution;22

13. Emphasizes the need to address the particular challenges faced by developing middle-income countries through capacity-building;

14. Calls for capacity-building initiatives to take into account the needs of developing countries, and calls upon States, international organizations and donor agencies to make efforts to ensure the sustainability of such initiatives;

The IAEA continues to contribute to the protection of people and the environment — including to the marine environment — from the risk associated with exposure to ionizing radiation from the operation of nuclear and radioactive facilities, as well as the disposal of radioactive waste. In cooperation with its Member States, the IAEA develops Safety Standards for managing the releases of effluents containing trace amounts of radioactive materials into the marine environment, for marine environmental monitoring, and for assessing radiological impacts on the public, as well as on marine flora and fauna. Through these Safety Standards, the IAEA helps ensure the establishment of an appropriate international framework for the conservation and sustainable use of the marine environment and its resources. The IAEA also supports its Member States in applying these international Safety Standards, including through technical cooperation programmes aimed at developing States. IAEA published guidance on Regulatory Control of Radioactive Discharges to the Environment (IAEA Safety Guide GSG-9) and Prospective Radiological Environmental Impact Assessment for Activities and Facilities (IAEA Safety Guide GSG-10) and is updating the Safety Guide for Environmental and Source Monitoring for Purposes of Radiation Protection monitoring (IAEA Safety Guide RS-G-1.8).

The IAEA is finalizing the 2021-2025 programme entitled “Methods for Radiological and Environmental Impact Assessment” (MEREIA), which aims to enhance international capability and capacity in radiological environmental impact assessment. MEREIA has provided a platform for exchange of information and experience within the framework of IAEA Safety Standards for the protection of people and environment. The programme has included development of methodologies for the assessment of the radiological impact from the historical dumping of radioactive wastes into the oceans between 1949 and 1982, as well as the evaluation of the cumulative impacts of chemical and radioactive pollutants.

The IAEA maintains a web based international database on discharges of radionuclides to the atmosphere and the aquatic environment (DIRATA), which contains information voluntarily submitted by Member States from nuclear facilities worldwide.

15. Recalls, in this regard, that, in "The future we want", States recognized the importance of building the capacity of developing countries to be able to benefit from the conservation and sustainable use of the oceans and seas and their resources, and in this regard emphasized the need for cooperation in marine scientific research to implement the provisions of the Convention and the outcomes of the major summits on sustainable development, as well as for the transfer of technology on mutually agreed terms;

The IAEA, through its Marine Environment Laboratories in Monaco, builds capacity in its Member States to address a range of issues affecting the marine environment, including seafood safety, pollution including from marine plastics, and climate change. Several mechanisms are used, including the IAEA Technical Cooperation programme (TCP), Coordinated Research Activities (Coordinated Research Projects and Collaborating Centres), and Peaceful Uses Initiative (PUI) projects.

The IAEA Marine Environment Laboratories continued assisting the UNEP Mediterranean Action Plan (MAP) and the contracting parties to the Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, with the harmonization and coordination of quality assurance for contaminants monitoring in the Mediterranean Sea through the Programme for the Assessment and Control of Marine Pollution in the Mediterranean (MED POL). Proficiency tests and bi-annual training courses are provided to laboratories in MED POL member countries (the 21 countries bordering the Mediterranean that are contracting parties to the Barcelona Convention).

Since its inception in 2012, the OA-ICC and its global partners have provided training and research collaboration opportunities to close to 900 scientists from more than 100 Member States. These efforts are helping Member States to build, strengthen, and maintain human expertise and institutional capacities to define national needs, to make informed decisions on action plans and measures to protect the oceans, to deliver sustainable ecosystem services and to ensure sustainable socio-economic development.

Related to §§ 185, 194, 348 of resolution 79/144.

185. Emphasizes once again the importance of the implementation of Part XII of the Convention in order to protect and preserve the marine environment and its living marine resources against pollution and physical degradation, and calls upon all States to cooperate and take measures consistent with the Convention, directly or through competent international organizations, for the protection and preservation of the marine environment;

194. Encourages States, directly or through competent international organizations, to consider the further development and application, as appropriate and consistent with international law, including the Convention, of environmental impact assessment processes covering planned activities under their jurisdiction or control that may cause substantial pollution of or significant and harmful changes to the marine environment, and also encourages the communication of the reports of the results of such assessments to the competent international organizations in accordance with the Convention;

348. Encourages States to work closely with and through international organizations, funds and programmes, as well as the specialized agencies of the United Nations system and relevant international conventions, to identify emerging areas of focus for improved coordination and cooperation and how best to address these issues;

The IAEA plays a key role in strengthening the capacities of Member States to monitor harmful algal blooms (HABs) and detect associated marine biotoxins. HABs pose serious threats to marine ecosystems, fisheries, food security, and public health. The IAEA provides technical support through training, equipment, and the transfer of nuclear and receptor-based analytical techniques, enabling laboratories to improve early detection, monitoring, and risk assessment of toxic events. A particular focus has been placed on ciguatera fish poisoning (CFP)—the most common non-bacterial seafood-related illness worldwide—caused by the bioaccumulation of ciguatoxins produced by *Gambierdiscus* species in tropical

reef fish. To address this challenge, the IAEA helps national laboratories quantify ciguatoxins using radioligand receptor binding assays and other nuclear-derived methods, thereby enhancing seafood safety and public health protection. These efforts are carried out in close collaboration with international partners such as FAO, IOC-UNESCO, and WHO, ensuring that global strategies for HAB monitoring and biotoxin management are scientifically sound, harmonized, and aligned with international frameworks like the SDGs and the Global Ocean Observing System.

The IAEA supports regional Conventions in their marine radioactivity monitoring programmes. The IAEA Marine Environment Laboratories in Monaco provide the HELCOM MORS programme (Helsinki Commission's programme for Monitoring of Radioactive Substances in the Baltic Sea) with analytical quality support and make widely accessible through IAEA's Marine Radioactivity Information System (MARIS) database HELCOM Baltic marine environmental radioactivity data. The IAEA collaborates with contracting parties' laboratories in the production and characterization of reference materials of marine origin.

In the framework of the OSPAR (Oslo-Paris) Convention for the protection of the North-East Atlantic Ocean maritime area (OSPAR), the IAEA Marine Environment Laboratories Monaco collaborate with the contracting parties by providing support for analytical quality assurance and marine environmental radioactivity database development to the Radioactive Substances Committee (RSC).

In April 2021, Japan announced the Basic Policy on the handling of ALPS (Advanced Liquid Processing System)-treated water stored at the Fukushima Daiichi Nuclear Power Station, which is to discharge ALPS-treated water into the sea surrounding the plant, subject to domestic regulatory approvals. Marine radioactivity monitoring is carried out by Japan in the frame of its Comprehensive Radioactivity Monitoring Plan and results are published regularly online. Through its Marine Environment Laboratories, the IAEA is helping to ensure the high quality of data and to prove the comparability of the results. In collaboration with third-party laboratories, the IAEA is conducting independent corroboration of source and environmental monitoring data published by the Government of Japan. Moreover, through additional measures initiated by the IAEA in October 2024, countries engage directly in sampling, increasing transparency, understanding, and trust, particularly in the region.

The IAEA Marine Environment Laboratories continued working closely with UNEP within the framework of several Conventions including the Minamata Convention on Mercury, the Stockholm Convention on Persistent Organic Pollutants, and the Barcelona Convention/UN Environment MAP Programme for the Assessment and Control of MED POL. A formal agreement exists with the latter for capacity building and the quality assurance of monitoring data, obtained by laboratories in the contracting parties. Cooperation between the IAEA and the UNEP Minamata Convention Secretariat has been maintained, and the IAEA continues to be a member of the UNEP Environmental Global Mercury Partnership since 2020.

Linkages between the IAEA and the UNEP Chemicals and Health Branch continue with a view of synergies in capacity building activities during a new phase of the Global Chemicals Monitoring Programme (GCMP) 2025-2030. This is a major pillar for the evaluation of the effectiveness of the Stockholm Convention on Persistent Organic Pollutants (POPs) and the Minamata Convention on Mercury.

Related to §§ 213, 214, 215, 217, 221 of resolution 79/144.

213. Recalls that, in "The future we want", States noted with concern that the health of oceans and marine biodiversity are negatively affected by marine pollution, including marine debris, especially plastic, persistent organic pollutants, heavy metals and nitrogen-based compounds, from a number of marine and land-based sources, including shipping and land run-off, and that States committed to take action to reduce the incidence and impacts of such pollution on marine ecosystems, and encourages States, in accordance with the commitment expressed in

this regard, and based on collected scientific data, to take action by 2025 to achieve significant reductions in marine debris to prevent harm to the coastal and marine environment;

214. Recognizes the need for better understanding of the sources, amounts, pathways, distribution, trends, nature and impacts of marine debris, especially plastics and microplastics, and to examine possible measures and best available techniques and environmental practices to prevent its accumulation and minimize its levels in the marine environment, and welcomes in this regard the work conducted under the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection, led by the Intergovernmental Oceanographic Commission, and its reports entitled Sources, Fate and Effects of Microplastics in the Marine Environment: A Global Assessment, Guidelines for the Monitoring and Assessment of Plastic Litter in the Ocean, and Sea-based Sources of Marine Litter, and the report of the Executive Director of the United Nations Environment Programme entitled From Pollution to Solution: A Global Assessment of Marine Litter and Plastic Pollution, launched on 21 October 2021;

215. Notes that the UNEP Frontiers 2016 Report identifies microplastics as one of six key emerging environmental issues, further notes that the sixth Global Environment Outlook stresses, inter alia, the urgency of addressing ocean plastic pollution and the proven adverse impacts of microplastics to marine ecosystems, and calls upon States to implement resolution 4/6 on marine plastic litter and microplastics, adopted by the United Nations Environment Assembly;

217. Also welcomes the decision of the United Nations Environment Assembly to convene an intergovernmental negotiating committee to develop an international legally binding instrument on plastic pollution, including in the marine environment, based on a comprehensive approach and with the ambition of completing its work by the end of 2024 in line with the mandate of United Nations Environment Assembly resolution 5/14,118 and notes that the committee held its first to fifth sessions in Punta del Este, Uruguay, from 28 November to 2 December 2022, in Paris from 29 May to 2 June 2023, in Nairobi from 13 to 19 November 2023, in Ottawa from 23 to 29 April 2024, and in Busan, Republic of Korea, from 25 November to 1 December 2024, respectively;

221. Recognizes the attention paid to the theme of "Marine debris, plastics and microplastics" at the seventeenth meeting of the Informal Consultative Process in 2016, and urges States to integrate the issue of marine debris into national and, as appropriate, regional strategies dealing with waste management, especially in the coastal zone, ports and maritime industries, including recycling, reuse, reduction and disposal, to consider developing an integrated waste management infrastructure and to encourage the development of appropriate economic incentives with the aim of reducing marine debris to address this issue, including the development of cost recovery systems that provide an incentive to use port reception facilities and discourage ships from discharging marine debris at sea, and support for measures to prevent, reduce and control pollution from any source, including land-based sources, such as community-based coastal and waterway clean-up and monitoring activities, and encourages States to cooperate regionally and sub regionally to identify potential sources and coastal and oceanic locations where marine debris aggregates and to develop and implement joint prevention programmes for marine debris and to develop and implement environmentally sound options for recovery programmes, as well as to raise awareness of the issue of marine debris and the need to consider environmentally sound options for its removal;

Through NUTEC Plastics initiative, the IAEA is supporting Member States in integrating nuclear and isotopic techniques into their efforts to address plastic pollution. NUTEC Plastics builds on the IAEA's work addressing plastic pollution through recycling, using radiation technology, and marine monitoring, using isotopic tracing techniques. NUTEC Plastics is closely aligned with other UN organizations tackling this problem, including the UNEP and the Food and Agriculture Organization of the United Nations (FAO), and contributes to global efforts and initiatives. The IAEA's NUTEC Plastics initiative is accelerating the development of nuclear and isotopic techniques for assessing the abundance, distribution and characteristics of marine plastics to better understand their origin, transport, fate, and impact. In the reporting period, harmonized and standardized protocols to identify microplastics in marine environmental samples were established using state-of-the-art analytical techniques that are in line with best practices, and capacity was enhanced for scientists and technicians.

The IAEA continues supporting Member States in developing a toolbox of harmonized analytical methods for marine microplastic monitoring. The development of harmonized methods is key for reporting global progress on decreasing plastics pollution and for reporting on progress towards the achievement of

SDG14. In 2024 and 2025, NUTEC Plastics continued its efforts to combat plastic pollution, aligning with ongoing UN effort to end plastics pollution, and contributing scientific expertise to Intergovernmental Negotiating Committee on Plastic Pollution to develop an international legally binding instrument to end plastic pollution including in the marine environment.

Related to §§ 239, 287 of resolution 79/144.

239. Notes with concern the potential for serious environmental consequences resulting from oil spill incidents or pollution incidents involving hazardous or noxious substances, urges States, consistent with international law, to cooperate, directly or through competent international organizations, and share best practices, in the fields of protection of the marine environment, human health and safety, prevention, emergency response and mitigation, and in this regard encourages the undertaking of and collaboration on scientific research, including marine scientific research, to better understand the consequences of marine oil spills or marine spills involving hazardous or noxious substances;

287. Notes with concern that human-related threats, such as marine debris, ship strikes, underwater noise, persistent contaminants, coastal development activities, oil spills and abandoned, lost or otherwise discarded fishing gear, together or individually, may have a severe impact on marine life, including at its higher trophic levels, and calls upon States and competent international organizations to cooperate and coordinate their research efforts in this regard so as to prevent and reduce those impacts and preserve the integrity of the whole marine ecosystem, while fully respecting the mandates of relevant international organizations;

The IAEA continued to provide support to its Member States for oil spill response by building capacity and assessing impacts related to the accidental discharge of hydrocarbons into the marine environment. In collaboration with OSINet, the Bonn Agreement Oil Spill Identification Network of experts, the IAEA has contributed to the development of analytical methods for identifying the potential source of contamination following an oil spill. Through the procurement of laboratory equipment and training of staff, the IAEA is supporting laboratories in its Member States to enhance their capacity to monitor the effects of oil spills as well as hazardous contaminants in the marine environment and to assess potential short- and long-term toxicological impacts.

Related to §§ 195, 196, 197, 198, 203, 204, 205, 208, 211, 212, 315, 339 of resolution 79/144.

195. Notes with concern the impacts of climate change on the ocean and the cryosphere, including extreme sea level events and sea level rise, to which low-lying islands, in particular small island developing States, coasts, deltas and coastal communities, are particularly exposed;

196. Also notes with concern the findings of the Intergovernmental Panel on Climate Change in its successive reports, and in this regard refers in particular to its Special Report on the Ocean and Cryosphere in a Changing Climate and its Sixth Assessment Report, including its synthesis report, and recognizes the importance of the best available science for effective climate action and policymaking;

197. Recognizes the importance of improving understanding of the impacts of climate change on oceans and seas, and recalls that, in "The future we want", States noted that sea level rise and coastal erosion are serious threats for many coastal regions and islands, particularly in developing countries, and in this regard called upon the international community to enhance its efforts to address these challenges, and notes the attention paid to the themes of "The effects of climate change on oceans" and "Sea level rise and its impacts" at the eighteenth and twenty-first meetings, respectively, of the Informal Consultative Process, in 2017 and 2021, which, inter alia, highlighted the urgency of sea level rise for small island developing States and coastal States, including low-lying coastal areas;

198. Takes note of the findings of reports of the Intergovernmental Panel on Climate Change, including its Special Report on Global Warming of 1.5°C, that increasing warming amplifies the exposure of small islands, low-lying coastal areas and deltas to the risks associated with sea level rise and extreme sea level events;

203. Welcomes the Paris Agreement 108 and its early entry into force on 4 November 2016, encourages all its Parties to fully implement the Agreement and Parties to the United Nations Framework Convention on Climate Change 109 that have not yet done so to deposit their instruments of ratification, acceptance, approval or accession, as appropriate, as soon as possible, notes the entry into force of the Doha amendment 110 to the Kyoto Protocol 111 on 31 December 2020, and recognizes the importance of raising awareness of the adverse impact of climate change on the marine environment, marine biodiversity and sea level;

204. Notes, in this regard, the decision at the twenty-seventh session of the Conference of the Parties to the United Nations Framework Convention on Climate Change that future ocean and climate change dialogues will, from 2023, be facilitated by two co-facilitators, selected by Parties biennially, who will be responsible for deciding the topics for and conducting the dialogue, in consultation with Parties and observers, and preparing an informal summary report for consideration at the subsequent session of the Conference of the Parties;

205. Welcomes, in this regard, the convening of the twenty-ninth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, the nineteenth session of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol and the sixth session of the Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement in Baku from 11 to 22 November 2024;

208. Recognizes the importance of improving understanding of the impacts of acidification on oceans and seas, and recalls that, in "The future we want", States called for support for initiatives that address ocean acidification and the impacts of climate change on marine and coastal ecosystems and resources and in this regard reiterated the need to work collectively to prevent further ocean acidification, as well as to enhance the resilience of marine ecosystems and of the communities whose livelihoods depend on them, and to support marine scientific research, monitoring and observation of ocean acidification and particularly vulnerable ecosystems, including through enhanced international cooperation in this regard;

211. Encourages States, individually or in collaboration with relevant international organizations and bodies, to enhance their scientific activity to better understand the effects of climate change on the marine environment and marine biodiversity, support continued coordination of scientific work to study and minimize the impacts of ocean acidification and develop ways and means of adaptation, taking into account, as appropriate, the precautionary approach and ecosystem approaches;

212. Notes the vital role that coastal blue carbon ecosystems, including mangroves, tidal marshes and seagrasses, play in climate adaptation and mitigation through carbon sequestration, and in increasing the resilience of coastal ecosystems to ocean acidification, and the range of other benefits that these ecosystems provide, including sustainable livelihoods, food security and biodiversity conservation, and coastal protection, and encourages States and relevant international institutions and organizations to work collaboratively to protect and restore coastal blue carbon ecosystems;

315. Reaffirms the principles guiding the Regular Process and its objective and scope, recalls the crucial importance of the Regular Process and its possible inputs for ongoing ocean-related intergovernmental processes, including for the 2030 Agenda, the United Nations Framework Convention on Climate Change, the Convention on Biological Diversity, the Informal Consultative Process, and the development of an international legally binding instrument on plastic pollution, including in the marine environment, among other relevant processes, and notes the importance of continuing support and cooperation between the activities of the United Nations Decade of Ocean Science for Sustainable Development and those of the Regular Process, and the development of a regulatory regime to organize and control all activities of exploration for, and exploitation of, the resources of the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction by the International Seabed Authority;

339. Notes the discussions at the twenty-fourth meeting of the Informal Consultative Process, from 18 to 21 June 2024, on the theme of the ocean as a source of sustainable food, during which delegations and other participants, inter alia, noted the contribution of fisheries and aquaculture to global food security, nutrition and livelihoods, as well as their cultural and socioeconomic benefits, underscored the role of sustainable fisheries and aquaculture for

achieving the relevant development commitments, noted the considerable challenges in respect of the theme of the discussions, including overfishing, illegal, unreported and unregulated fishing, food loss and waste, and different pressures affecting the health and resilience of marine ecosystems such as climate change, pollution and biodiversity loss, emphasized the importance of certain management approaches to address these challenges, and pointed out the opportunities in respect of the theme of the discussions, including by increasing and improving cooperation and coordination at all levels, holistic and multi-stakeholder management approaches, promoting the mainstreaming of aquatic food systems into global food system and climate change processes, and further developing scientific understanding and strengthening capacity-building;

The ocean plays a major role in absorbing CO_2 from the atmosphere, thus regulating climate. The IAEA Marine Environment Laboratories pursued their efforts initiated in 2020, on assessing the capacity of coastal marine areas to sequester organic carbon (Blue Carbon), by advancing scientific knowledge on the capacity of coastal vegetated ecosystems (mangroves, saltmarshes, and seagrasses) to sequester carbon as a nature-based solution to mitigate climate change, jointly with international scientific partners. A large number of research studies are being conducted in more than 30 countries, and, in parallel, the IAEA is supporting Member States to establish their own capacity via national and regional technical cooperation programs. In the reporting period, IAEA implemented Blue Carbon projects in 30 countries jointly with local research institutes, applying radionuclides as tools to assess the rates of carbon sequestration in vegetated coastal areas, aiding Member States in evaluating the capacity of these ecosystems to store carbon long-term, as a nature-based solution. On the African continent alone, the IAEA is working with 16 countries on capacity building on Blue Carbon. The IAEA is a partner in the Ocean Decade Program 'Global Ocean – Blue Carbon' (GO-BC).

Related to §§ 24, 207, 208, 209, 210, 211, 212, 275 of resolution 79/144.

24. Calls upon States and international institutions, including through bilateral, regional and global cooperation programmes, technical partnerships and fellowships, to develop and strengthen capacity-building activities in and to transfer to developing countries, in particular least developed countries and small island developing States, on mutually agreed terms, and taking into account the Criteria and Guidelines on the Transfer of Marine Technology, environmentally sound technologies and methodologies to study and minimize the impacts of ocean acidification, and notes in this regard the international scientific cooperation through the Ocean Acidification International Coordination Centre of the International Atomic Energy Agency and within the Global Ocean Acidification Observing Network;

207. Also notes with concern the approximately 30 per cent increase in the acidity of ocean surface waters since the beginning of the industrial era 114 and the wide range of impacts associated with the continuing and alarming acidification of the world's oceans, and urges States to make significant efforts to tackle the causes of ocean acidification, recognizing countries' national circumstances and respective capabilities, and to further study and minimize its impacts, to enhance local, national, regional and global cooperation in this regard, including the sharing of relevant information and the development of worldwide capacity, including in developing countries, to measure ocean acidification, and to take steps to make marine

208. Recognizes the importance of improving understanding of the impacts of acidification on oceans and seas, and recalls that, in "The future we want", States called for support for initiatives that address ocean acidification and the impacts of climate change on marine and coastal ecosystems and resources and in this regard reiterated the need to work collectively to prevent further ocean acidification, as well as to enhance the resilience of marine ecosystems and of the communities whose livelihoods depend on them, and to support marine scientific research, monitoring and observation of ocean acidification and particularly vulnerable ecosystems, including through enhanced international cooperation in this regard;

209. Also recognizes the attention paid to ocean acidification at the fourteenth, eighteenth and nineteenth meetings of the Informal Consultative Process, in 2013, 2017 and 2018, respectively, and commits itself to continue to pay attention to this important issue, including by taking into account the first and second World Ocean Assessments (World Ocean Assessment I and II), the ongoing work of the Ocean Acidification International Coordination Centre of the International Atomic Energy Agency and the scientific cooperation fostered by the Global Ocean Acidification Observing Network;

The IAEA continues to serve as a technical advisor on matters related to radioactive materials and works in cooperation with the International Maritime Organization (IMO) and the contracting parties of various international and regional conventions related to the prevention of pollution and the sustainable use of the marine environment and its resources. These conventions include: the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972, the Convention for the Protection of the Marine Environment of the North-East Atlantic (the 'OSPAR Convention') and the Baltic Marine Environment Protection Commission (HELCOM).

210. Notes the work of the Intergovernmental Panel on Climate Change, notes with concern its findings on the acidification of the oceans and the substantial risks to marine ecosystems, especially polar ecosystems, coral reefs, plankton and other organisms which have a calcareous exoskeleton, or a shell, like crustaceans, and the potentially detrimental consequences for fisheries and livelihoods, as well as the findings of the World Meteorological Organization contained in its annual Greenhouse Gas Bulletin, and notes its ongoing collaboration with organizations and institutions that address the carbon budget of the ocean, 115 and in this regard encourages States and competent international organizations and other relevant institutions, individually and in cooperation, to urgently pursue further research on ocean acidification, especially programmes of observation and measurement, noting in particular the continued work under the Convention on Biological Diversity, and to increase national, regional and global efforts to address levels of ocean acidity and the negative impact of such acidity on vulnerable marine ecosystems, particularly coral reefs;

211. Encourages States, individually or in collaboration with relevant international organizations and bodies, to enhance their scientific activity to better understand the effects of climate change on the marine environment and marine biodiversity, support continued coordination of scientific work to study and minimize the impacts of ocean acidification and develop ways and means of adaptation, taking into account, as appropriate, the precautionary approach and ecosystem approaches;

212. Notes the vital role that coastal blue carbon ecosystems, including mangroves, tidal marshes and seagrasses, play in climate adaptation and mitigation through carbon sequestration, and in increasing the resilience of coastal ecosystems to ocean acidification, and the range of other benefits that these ecosystems provide, including sustainable livelihoods, food security and biodiversity conservation, and coastal protection, and encourages States and relevant international institutions and organizations to work collaboratively to protect and restore coastal blue carbon ecosystems;

275. Recalls that, in "The future we want", States recognized the significant economic, social and environmental contributions of coral reefs, in particular to islands and other coastal States, as well as the significant vulnerability of coral reefs and mangroves to impacts, including from climate change, ocean acidification, overfishing, destructive fishing practices and pollution, and supported international cooperation with a view to conserving coral reef and mangrove ecosystems and realizing their social, economic and environmental benefits, as well as facilitating technical collaboration and voluntary information-sharing;

The IAEA continues to host the OA-ICC, which facilitates global collaboration on the topic of ocean acidification, through capacity building, communication, and targeted research activities that advance knowledge of ocean acidification impacts. The OA-ICC co-organizes and participates in several high-level symposia and events every year and, with its global partners, has facilitated capacity building opportunities for close to 900 scientists from more than 100 Member States.

The OA-ICC pursued its activities as a global information hub, by providing access to ocean acidification publications and information on relevant events and opportunities, as well as to unique resources such as: 1) a bibliographic database centralizing all existing knowledge in the field of ocean acidification in the form of more than 11,500 references with citations and abstracts; 2) a data portal on the biological response to ocean acidification, containing datasets from over 1,600 research articles.

Since the 2024 report, the OA-ICC has organized and supported a total of 10 events, including technical and consultancy meetings, training courses, and side events within the framework of high-level international conferences. The OA-ICC organized a training course on ocean acidification in Monrovia, Liberia, in September 2024, which trained 17 participants from 6 West African countries. The Centre, in collaboration with the Prince Albert II of Monaco Foundation, also organized its annual Winter School on Ocean Acidification and Multiple Stressors in Monaco in November 2024. The OA-ICC also participated in several panels on ocean acidification at UNFCCC COP in Baku. In April 2025, also in partnership with the Prince Albert II of Monaco Foundation, the Centre organized a training course on the biological impacts of Ocean Alkalinity Enhancement. Additionally, the IAEA continued to support the Ocean Decade Program: 'Ocean Acidification Research for Sustainability' (OARS).

The IAEA is co-focal lead of the UN Community of Ocean Action on Ocean Acidification, a process to facilitate progress on more than 400 Voluntary Commitments that have been submitted by various stakeholders across the globe on SDG 14.3. The Community of Ocean Action on Ocean Acidification is directly aligned with the goals and objectives of the UN Decade of Ocean Science for Sustainable Development (2021-2030).

Related to §§ 260, 339 of resolution 79/144.

260. Recognizes the ongoing activities of the secretariat of the Convention on Biological Diversity in coordinating capacity-building efforts to support developing States in achieving the goals and targets of the Kunming-Montreal Global Biodiversity Framework in marine and coastal areas;

339. Notes the discussions at the twenty-fourth meeting of the Informal Consultative Process, from 18 to 21 June 2024, on the theme of the ocean as a source of sustainable food, during which delegations and other participants, inter alia, noted the contribution of fisheries and aquaculture to global food security, nutrition and livelihoods, as well as their cultural and socioeconomic benefits, underscored the role of sustainable fisheries and aquaculture for achieving the relevant development commitments, noted the considerable challenges in respect of the theme of the discussions, including overfishing, illegal, unreported and unregulated fishing, food loss and waste, and different pressures affecting the health and resilience of marine ecosystems such as climate change, pollution and biodiversity loss, emphasized the importance of certain management approaches to address these challenges, and pointed out the opportunities in respect of the theme of the discussions, including by increasing and improving cooperation and coordination at all levels, holistic and multi-stakeholder management approaches, promoting the mainstreaming of aquatic food systems into global food system and climate change processes, and further developing scientific understanding and strengthening capacity-building;

The IAEA supports its Member States by providing technical expertise on the processes and mechanisms that may lead to marine biodiversity loss, such as pollution, climate, and ocean change impacts. Research and development efforts focus on the effects of multiple stressors, including ocean acidification and toxic trace elements on the biological response in marine species. Such research helps Member States determine the vulnerability of oceanic resources likecoral reef habitats and important seafood species, and can therefore help evaluate the potential biological and socio-economic impacts of changes in ecosystems and ecosystem services (sustainable food security). Through its work on Blue Carbon, the IAEA supports Member States in their contributions to the restoration of coastal vegetated ecosystems and their biodiversity.

Related to §§ 11, 12, 351 of resolution 79/144.

11. Emphasizes that capacity-building is essential to ensure that States, especially developing countries, in particular the least developed countries, landlocked developing countries and small island developing States, as well as coastal African States, are able to fully implement the Convention, benefit from the sustainable development of the oceans

and seas and participate fully in global and regional forums on ocean affairs and the law of the sea, including in relation to the protection of the marine environment and the conservation and sustainable use of marine resources;

12. Recognizes the need to build the capacity of developing States to raise awareness of and support the implementation of improved waste management practices, noting the particular vulnerability of small island developing States to the impact of marine pollution of all kinds, in particular from land-based activities and marine debris and nutrient pollution;

351. Recalls the outcome document of the third International Conference on Small Island Developing States, the SIDS Accelerated Modalities of Action (SAMOA) Pathway160 and the modalities set forth for strengthened action on a range of small island developing States challenges and priorities, including challenges related to the conservation and sustainable use of marine resources, and the preservation of the marine environment, and in this regard welcomes the convening of the high-level midterm review of the SAMOA Pathway in September 2019 and the adoption of its political declaration,161 which notes the importance of oceans, seas and marine resources to small island developing States and acknowledges their efforts to develop and implement strategies for the conservation and sustainable use of the ocean and its resources, and reaffirms its commitment to work with small island developing States towards the full implementation of the SAMOA Pathway to ensure its success;

The IAEA is supporting SIDS to address Ocean Acidification through its OA-ICC. In 2024-25, the OA-ICC held a series of meetings on Designing Climate Adaptation Pathways for Atoll Islands, in which SIDS experts participated. Additionally, the OA-ICC provided capacity building opportunities on ocean acidification with participation from SIDS researchers.

As part of the Subregional Approach to the Pacific Islands (SAPI) for Fiji, Marshall Islands, Palau, Papua New Guinea, Samoa and Vanuatu, the IAEA is supporting development in the areas of water resources and coastal zone management. This supports Member States in developing institutional and human capacities for the effective and sustainable implementation of integrated management of water resources and related ecosystems, in line with the need recognised in the SAMOA Pathway requirement. The project is building capacity in isotopic and complementary techniques to tackle the integrated management of water resources and coastal ecosystems. The project is also encouraging and supporting education, training and development of networks and partnerships among SIDS and with regional and international collaborators in relevant topical areas.

The IAEA, in collaboration with Japan, in the frame of Peaceful Uses Initiative projects, supports the development of capacity for marine radioactivity monitoring in Pacific Island States and the harmonisation of sampling and analytical methodologies across coastal South-East Asia and Pacific countries.

Related to §§ 371 of resolution 79/144.

371. Welcomes the work done by the secretariats of relevant United Nations specialized agencies, programmes, funds and bodies and the secretariats of related organizations and conventions to enhance inter-agency coordination and cooperation on ocean issues, including, where appropriate, through UN-Oceans, the inter-agency coordination mechanism on ocean and coastal issues within the United Nations system;

As a member of the UN-Oceans mechanism, the IAEA attends coordination meetings and contributes to outreach activities to strengthen UN coordinated action for Ocean conservation. The Agency contributed to the UN-Oceans side event “Striving for Ambitious Ocean-Based Action: How UN-Oceans can support States in scaling up ocean-related actions, including in the context of the next round of NDCs” at COP 29 in Azerbaijan in December 2024 and to the UN-Oceans side event “UN-Oceans as a mechanism to mobilize multilateral ocean action and amplify collective impacts toward the implementation of SDG 14” at UNOC3 in Nice, in June 2025.

Related to §§ 370 of resolution 79/144.

370. Requests the Secretary-General to bring the present resolution to the attention of heads of intergovernmental organizations, the specialized agencies, funds and programmes of the United Nations engaged in activities relating to ocean affairs and the law of the sea, as well as funding institutions, and underlines the importance of their constructive and timely input for the report of the Secretary-General on oceans and the law of the sea and of their participation in relevant meetings and processes;

Through its Marine Environment Laboratories, the IAEA contributes to effective coordination between UN Agencies through its participation in the Environment Management Group (EMG). The IAEA continued attending the annual Senior Officials Meeting and the EMG Mid-Term Technical Segment. The IAEA contributes to the EMG Issue Management Groups (IMG) on Pollution and Biodiversity.