

**International Atomic Energy Agency input on United Nations Secretary General report
on Oceans and the Law of the Sea,
within the thematic of “Capacity building and the transfer of marine technology:
New developments, approaches and challenges”.**

Marine microplastics monitoring is indispensable for determining the pathways and impacts on the marine ecosystem and on seafood. The data collected through monitoring efforts is crucial to provide decision makers with evidence-based, actionable scientific knowledge to reduce microplastics entering the ocean. Using nuclear and isotopic techniques, the IAEA develops tools and methodologies for Member States to address marine microplastics pollution and its impact on marine (seafood) species and works with Member States to ensure they have the tools and skills needed for effective implementation. The IAEA NUTEC Plastics initiative is developing, scaling-up and building Member State capacity to use harmonised methods to assess the spatial and temporal distribution and character of marine microplastics pollution to identify their origin, transport pathways and impact on marine ecosystems and seafood.

The IAEA coordinates a global network of laboratories in Member States, with the capacity to monitor and assess the impact of marine plastics, with the IAEA Marine Environment Laboratories as Reference Laboratory. The IAEA also supports Member States in reporting on SDG 14, and, through NUTEC Plastics, contributes to the International Negotiation Committee (INC) Meetings to develop a UN legally binding Treaty to end plastic pollution including in the marine environment and supports UNEP’s Global Partnership on Marine Litter. With the capacity building provided through NUTEC Plastics on marine microplastics characterisation and monitoring and knowledge to be generated at national scale, targeted Member states are expected to be able to report the SDG14.1.1b indicator on marine plastic debris.

The need to urgently mitigate and minimize the impacts of ocean acidification (OA) is a scientific and policy priority, as it has the potential to damage fisheries and recreational businesses, and to negatively impact coral-reef based coastal protection efforts and the economies of ocean-dependent communities. To mitigate the negative impacts of climate change and ocean acidification, commercial companies have already begun to implement technologies such as marine Carbon Dioxide Removal (mCDR) for enhancing the ocean’s capacity to absorb CO₂. Assessing the impact of such potential solutions and, if suitable, implementing them requires information at the local scale that considers specificities in marine ecosystem response to OA (e.g. local adaptation, redundancies). The IAEA, through its Ocean Acidification International Coordination Centre (OA-ICC), is developing tools and actionable knowledge for Member States to evaluate potential local impacts of Ocean Alkalinity Enhancements (a mCDR technique) and inform policy for respective sustainable and safe use in coastal ecosystems. Through specific capacity building provided by the IAEA, Member States will be empowered to assess the impacts of OAE on marine organisms in their waters. The methodology to assess these impacts will be applicable to other mCDRs modulating seawater carbonate chemistry (e.g. restoration of blue carbon ecosystems, aquaculture).

Within the context of the discharge of Advanced Liquid Processing System (ALPS) treated water from the Fukushima Daiichi Nuclear Power Station, the IAEA is assisting countries in the region to develop their capacity for marine radioactivity monitoring through specialised training, provision of equipment and certified reference materials, proficiency testing and access to data through the IAEA’s Marine Radioactivity Information System MARIS. IAEA projects aim to improve the access of national authorities, regional organisations and the public to reliable monitoring data and science-based

information. This will be pivotal for understanding and managing the risks to ecosystems and human populations associated with radionuclides in the marine environment.

The IAEA continues to cooperate with UNEP to strengthen Member States' capacity to analyse contaminants in the marine environment: the IAEA, through its Marine Environment Laboratories, is assisting the UN Environment Programme (UNEP) Mediterranean Action Plan (MAP) and 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 non-radioactive pollutants monitoring in the Mediterranean Sea through the Programme for the Assessment and Control of Marine Pollution in the Mediterranean (MED POL). Bi-annual training courses are provided by the IAEA to experts in laboratories from MED POL member countries (the 21 countries bordering the Mediterranean that are Contracting Parties to the Barcelona Convention), on the determination of trace metals and organic contaminants in marine environmental compartments including seafood. Proficiency Tests for the analysis of trace elements and organic contaminants in marine samples and seafood are also organised by the IAEA bi-annually for Mediterranean Member States. Technical evaluations specifically tailored to each individual laboratory participating in the MED POL Proficiency Tests are provided. These communicate key findings on each laboratory's performance and aspects to address in relation to measurement quality.