International Atomic Energy Agency (IAEA)

**Input to 2017 SG report on oceans and the law of the sea**
**Part I**


**Executive Summary**

The International Atomic Energy Agency (IAEA) provides, inter alia, support to its Member States to develop and improve relevant nuclear and isotope-based techniques to support efforts to advance our understanding on the effects of climate change on oceans. The IAEA also provides guidance on the safe management of radioactive materials released into the marine environment, on the sustainable use of coastal and marine resources, and on the protection of the general public, including the maritime workforce.

Quality-assured data and high-quality data management are prerequisites for making informed decisions on action plans and measures to protect the oceans, to assure the sustainable delivery of ecosystem services and to enhance human health and prosperity. The IAEA provides analytical quality control services to Member States through the production of Certified Reference Materials, the organisation of inter-laboratory comparison studies and Proficiency Tests, and assists its Member States in building quality-assured global databases on radionuclides and hazardous contaminants in diverse marine environments.

Technical advice for the radiological protection of humans and marine flora and fauna provided by the IAEA was approved by the OSPAR Radioactive Substances Committee in 2016. IAEA's "Modelling and Data for Radiological Impact Assessments" programme (MODARIA concluded in 2015, and was published as a journal article **(**http://dx.doi.org/10.1016/j.scitotenv.2016.06.131**)**. A successor programme, MODARIA II, was launched in October 2016**.**

To address global ocean – climate linkages, in 2016 the IAEA's Ocean Acidification-International Coordination Centre (OA-ICC) co-organised the 4th International Symposium on the Ocean in a High-CO2 World, bringing together ocean acidification experts from around the globe. Controlled laboratory experiments to assess the effects of ocean acidification on marine life and associated ecosystems are being conducted at the IAEA Environment Laboratories in Monaco.

Through its Technical Cooperation programme (TC), the IAEA is responding to growing global concern about the effects of climate change on ocean environments by having developed several projects to support capacity building to use nuclear techniques to monitor and mitigate such effects of climate change.


As the only UN System Organization operating marine laboratories, the IAEA provides, inter alia, support to its Member States to develop and improve relevant nuclear and isotope-based tools and techniques, to monitor and support efforts to advance our understanding on the effects of climate change on oceans. This support is provided primarily by the IAEA Environment Laboratories in Monaco and the IAEA Technical Cooperation Programme.

The IAEA Environment Laboratories implement activities, improve knowledge, and develop methods to assist Member States laboratories and Regional Seas Conventions to better evaluate climate change – oceans linkages, and to monitor the behaviour of radionuclides, organic contaminants (including Persistent Organic Pollutants), hazardous trace elements (i.e., mercury), and marine biotoxins (Harmful Algal Blooms-HABs), and contribute to efforts to mitigate their impacts on

society. Monitoring concentrations of these contaminants in environmental matrices and biota helps Member States enhance knowledge on bio magnification in marine organisms, seafood safety, coastal and marine pollution, and the oceanic carbon cycle, particularly in the context of future climate change scenarios. Such work helps Member States fulfil their obligations in the framework of Global Conventions, such as the Stockholm Convention on Persistent Organic Pollutants and the Minamata Convention on Mercury, as well as for the implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. In 2016, the IAEA Environment Laboratories continued training Member States in the science of ocean acidification, impacts on coastal and marine ecosystems, and the determination of diverse marine contaminants. Furthermore, the IAEA Environment Laboratories provide analytical quality control services to its Member States through the production of certified reference materials, proficiency tests, the development of inter-laboratory comparison studies as well as controlled experiments that also address ocean acidification effects on marine ecosystems. The IAEA also assists its Member States in building quality-assured global databases on radionuclides and hazardous contaminants in diverse marine samples, which is essential information for accurately assessing pollution status and trends in the coastal and marine environment, as well as facilitating the comparability of similar data world-wide.

The IAEA through its Technical Cooperation programme (TC) has been supporting the Asia and Pacific region establish capabilities for monitoring the occurrence of harmful algal blooms through the project entitled "Supporting the Use of Receptor Binding Assay (RBA) to Reduce the Adverse Impacts of Harmful Algal Toxins on Seafood Safety", in collaboration with the US National Oceanic and Atmospheric Administration. To date, a reference Laboratory for Harmful Algal Blooms was established in Oman. A new publication on Ciguatera Surveillance Programme provides guidance and relevant information on both key actions and tools required for each participating Member State in Asia and the Pacific region, which would support the implementation of a National Ciguatera Fish Poisoning (CFP) Surveillance Program. Kuwait Institute for Scientific Research (KISR), with the support of the IAEA TC programme developed a micro sampling device for marine environment monitoring. In addition, the IAEA is developing an inter-regional project targeted to Small Island Developing States (SIDS) in cooperation with the Secretariat of the Pacific Community (SPC) and CARICOM for period 2018-2021, in order to build capacities in the SIDS to use nuclear techniques to mitigate the effects of climate change and monitor the impact of problems such as ocean acidification and raising sea levels.