

IAEA and the Regional Seas



IAEA

International Atomic Energy Agency

Environment Programme Rationale

- Threats to the environment are threats to development.
- Nuclear and isotopic techniques play an important role in understanding environmental processes.
- The Environment Programme links nuclear science with key environmental challenges, assisting Member States to develop strategies and capabilities for the sustainable management of their environment.

Specific role of the Laboratories

- ❑ Provide Member States with capacity building services focused on the following objectives:
 - **Analytical proficiency** – To ensure continuous improvement in the proficiency of analytical laboratories that support environmental monitoring, assessment, and emergency responses, while developing new analytical techniques that enhance efficiency;
 - **Informed solutions** – To identify, observe and better understand threats to ecosystem services caused by radionuclides and other pollutants, degradation of habitat, and planetary-scale changes, while facilitating strategies, reforms and partnerships that address key environmental challenges.

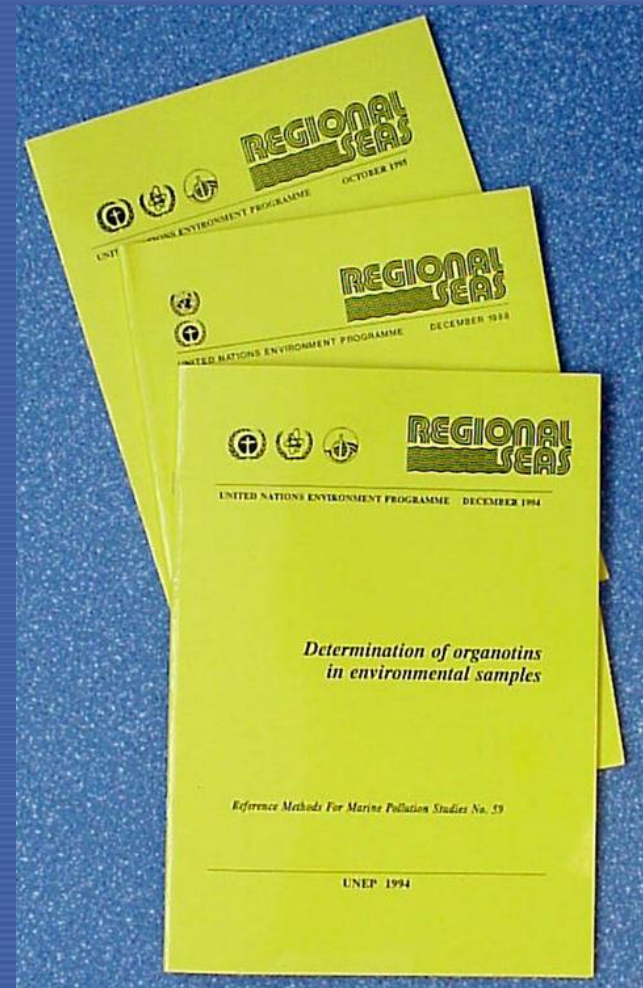
Nuclear & related technologies

- ❑ Ca-45 for studying the effect of OA on calcifying organisms (corals, shells, etc);
- ❑ Co-57, Zn-65, Mn-54 for studying aquaculture nutrition (trophic transfer of essential elements).
- ❑ Fate of contaminants in marine biota (radionuclides and metals/radioisotopic equivalents)(Ag-110m, Cd-109, Pb-210, Hg-203, Am-241, Cs-137, Cs-134)
- ❑ In vitro digestion to assess contaminants' bioaccessibility in humans (radionuclides and metals/radioisotopic equivalents)
- ❑ Th-234/U-238 to assess carbon export in upper oceans and the biological pump
- ❑ RBA (receptor binding assay) for detecting marine toxins in seafood (H3 labelled compounds)
- ❑ C-14 labelled HABs toxin precursor to study the impact of toxins in the environment
- ❑ Reconstruction of past HABs events (Pb-210 and microscopy), in relation to environmental conditions (ocean warming, acidification, and nutrient over-enrichment)

Nuclear & related technologies

- ❑ Pb-210 sediment geochronologies (sedimentation, dating, history of pollution)
- ❑ Short-lived Ra isotopes for tracing Submarine Groundwater discharge (SGD)
- ❑ Natural and anthropogenic radionuclides for characterising water circulation and mixing
- ❑ Environmental radionuclides for the characterisation of transit times/residence times relevant for countermeasures /mitigation
- ❑ Analysis of stable isotopes (Carbon, Nitrogen, Lead) to assess processes of carbon cycling and land based pollution and to track pollution sources;
- ❑ Analysis of trace elements and organic contaminants in marine samples in order to assess marine pollution and impacts on seafood safety.

- Pollution monitoring
- Data management
- Quality assurance
- Capacity building
- Research
- Technical cooperation
- Outreach







Proposed priorities for 2016-17

- Environmental Radioactivity
- Habitats threatened by Agriculture, Forestry and Mining
- Climate Change and Ocean Acidification
- Coastal Pollution and Seafood Safety

How can we help?

