IAEA – UNEP collaboration to improve data quality in marine pollution monitoring programmes of Regional Seas

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UNEP Regional Seas – IAEA Marine Environment Laboratories: a long history of collaboration

1974 UNEP creates the Regional Seas Programme and requests the IAEA (International Laboratory of Marine Radioactivity of Monaco) to conduct the first regional Interlaboratory Comparison exercise (ILC) on trace elements

1986 IAEA sets the Marine Environmental Studies Laboratory (MESL), to manage the non-nuclear programmes, particularly those pertaining to UNEP's Regional Seas Programmes.

MESL acts as a specialised coordinating centre for the Regional Seas Programmes and the Regional Analytical Centre for UNEP/MAP - MED POL to strengthen data quality assurance in the analytical laboratories participating to the MED POL monitoring programme

Towards an Ecosystem Approach in UNEP Regional Seas

- **Regional Sea Conventions progressively apply an Ecosystem Approach to the management of human activities that may affect the Regional marine and coastal environment**

Steps

1. **Definition of an ecological Vision for the Regional Sea**
2. **Setting of common Regional strategic goals**
3. **Identification of important ecosystem properties and assessment of ecological status and pressures**
4. **Development of a set of ecological objectives corresponding to the Vision and strategic goals**
5. **Derivation of operational objectives with indicators and target levels**
6. **Establish monitoring programmes for ongoing assessment and regular updating of targets**
7. **Development and review of relevant action plans and programmes**

Ecological Objective 9:
Contaminants cause no significant impact on coastal and marine ecosystems and human health (i)

Operational Objectives	Indicators	Data needed
9.1 Concentration of priority contaminants is kept within acceptable limits and does not increase	9.1.1 Concentration of key harmful contaminants in biota, sediment or water	Marine organisms and sediment Cd, Hg, Pb, PAHs, PCBs, Pesticides and other POPs

Ecological Objective 9:
Contaminants cause no significant impact on coastal and marine ecosystems and human health (ii)

Operational Objectives	Indicators	Data needed
9.3 Acute pollution events are prevented and their impacts are minimized	9.3.1 Occurrence, origin (where possible), extent of significant acute pollution events (e.g. slicks from oil, oil products and hazardous substances) and their impact on biota affected by this pollution	Oil slicks occurrence (events – amount of oil) Concentration of petroleum hydrocarbons in seawater Fingerprinting oil source using biomarkers and stable carbon isotopes

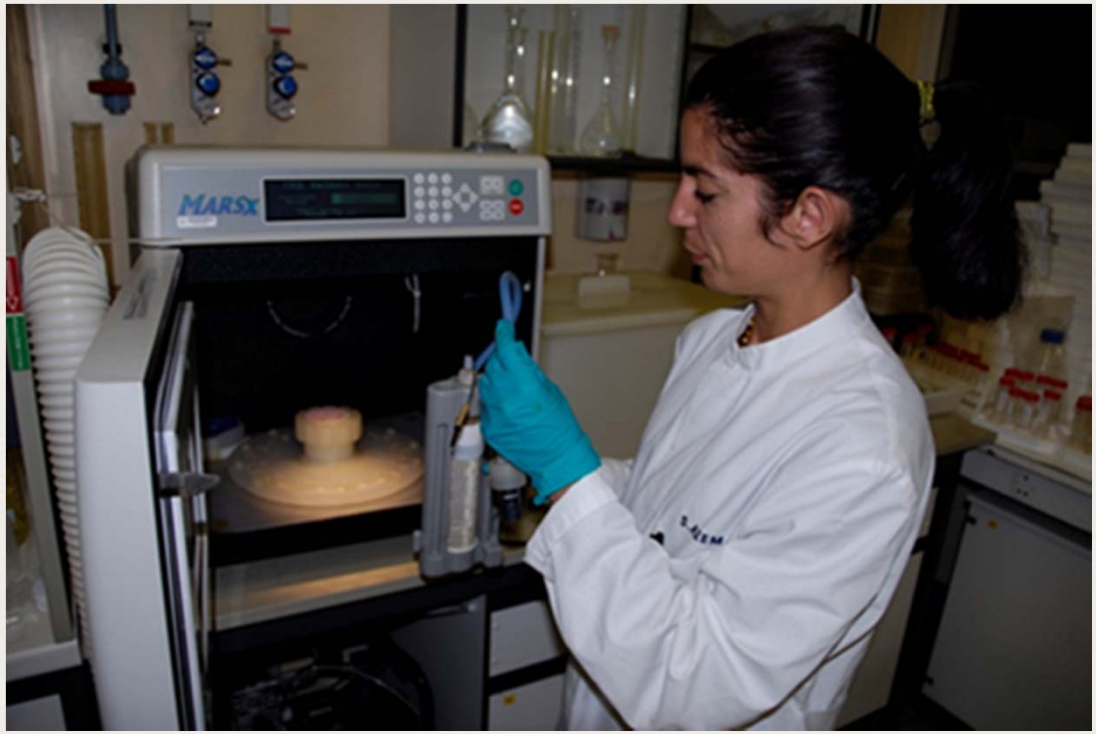
To asses marine pollution, Regional Sea Conventions have to establish and implement quality assured marine pollution monitoring programmes

Quality assured data is needed to

- Assess the state and trends of pollution
- Evaluate impact on the marine ecosystem
- Support decisions on the establishment of actions plans, programmes, and measures to control pollution
- Assess the effectiveness of the measures taken

IAEA assists Member States in Regional Seas to strengthen data Quality Assurance in marine pollution monitoring programmes

- **Production and distribution of Reference Materials**
- **Development of Reference Methods for analysis of pollutants and radionuclides**
- **Interlaboratory Comparison Exercises and Proficiency Tests**
- **Capacity building through training**



International Atomic Energy Agency
Dept. of Nuclear Sciences and Applications

Environment Laboratories
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es Reference Materials for trace elements, organic and radionuclides in marine matrices (seawater, sediment and biota)

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IAEA 405	RM	Marine sediment	Trace Elements + Methyl Hg
IAEA 406	RM	Fish	Organic Compounds
IAEA 407	RM	Fish	TE + MeHg
IAEA 408	RM	Marine sediment	OC
IAEA 417	RM	Marine sediment	OC
IAEA 432	RM	Mussel	OC
IAEA 435	RM	Tuna	OC
IAEA 436	RM	Tuna	TE + MeHg
IAEA 158	RM	Marine sediment	TE + MeHg
IAEA 159	RM	Marine sediment	OC
IAEA 451	CRM	Clam	OC
IAEA 452	CRM	Scallop	TE + MeHg
IAEA 457	CRM	Marine sediment	TE
IAEA 456	CRM	Marine sediment	TE + MeHg
IAEA 461	CRM	Clam	TE + MeHg
IAEA 458	CRM	Marine sediment	TE + MeHg
IAEA 459	CRM	Marine sediment	OC

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