International Laboratory of Marine Radioactivity, Monaco

We use the seas and oceans as a repository for the waste products of industry and the run-offs from agriculture. It has become clear, however, that the sea's capacity to transform or absorb these wastes is not unlimited and that controls are essential. International as well as national action must be taken.

The nuclear industry and the IAEA have been concerned for more than a decade to ensure that the rapid growth of nuclear power would not have harmful effects upon the seas and on life within them. One of the IAEA's first steps in this regard was to set up an international laboratory at Monaco in 1961 to study the impact of radioactivity on the marine environment, about which very little was then known.

The International Laboratory of Marine Radioactivity was founded in 1961 under a tripartite agreement between the International Atomic Energy Agency, the Government of the Principality of Monaco and the Institut Océanographique, Fondation Prince Albert Ier de Monaco. The programmes undertaken by the Laboratory from its conception concern both basic and applied research.

Housed in a wing of the Musée Océanographique, the Laboratory occupies a total floor space of 350 m² of offices, working space, and a small library. Its premises are on several levels, built into the rock face of the cliff which stretches from the large rock outcrop on which the Royal Palace and old city of Monaco is built, down to the sea level below. The staff at present consists of six professionals, ten scientific assistants and two secretaries. The facilities of the Musée itself, including its library and research vessels, are at the disposal of the scientific staff.

The studies being undertaken by the Laboratory centre on:

1. The chemical behaviour of radionuclides of various chemical states in the sea water.
2. The distribution and accumulation of radionuclides by the various components of the marine biota.
3. The interchange of radioisotopes between the sea bottom and the bottom water.
4. Intercalibration and standardization of methodology for marine radioecological studies.

There is growing interest in working on concentrations of plutonium in the ocean, as this will probably be increased as a result of the fast breeder reactor programmes. These reactors will probably be situated near the coast, and fuel-reprocessing plants will also be situated along the coastline. The possibility of increased off-shore designed nuclear power plants means the necessity of off-shore re-fuelling, all likely to add to the pollution. Population can likewise be expected to increase in the same areas where it has shown growth in previous decades — that is, along the coastline.

After the Stockholm Conference on the Human Environment, which brought increased concern on the pollution of the seas, there were proposals from some international, as well as national, organizations, that the activities of the Laboratory be expanded to include investigations on the most important non-nuclear pollutants using, in principle, nuclear techniques. The matter is at present under study.
The Musée Océanographique, built at the edge of a cliff in the old part of the city of Monacoville, overlooking the Mediterranean Sea. The IAEA Laboratory is housed in a wing of the building.

Water-cooled nuclear and conventional power plants use chlorination of the cooling water to avoid the growth or organisms in the cooling circuit. A study is being made at the Laboratory to investigate the effects of chemical biocides to the environment, as a side effect of the increasing need for cooling water.

A low-level plutonium determination test being carried out on marine environmental samples.

A marine sediment core obtained from one of the national oceanographic institutions which co-operated with the Laboratory in a five-year programme on radionuclide behaviour in ocean and coastal sediments. Marine sediments have a great ability of binding fallout and waste radionuclides, and in shallow seas most of the radioactivity will be found in the sea bottom.

Windows on three floor levels set into the rock face, are part of the offices and laboratories of the IAEA Institute.

Analysing the concentrations of stable elements in marine samples (water, plants, animals, sediments) with the recently acquired atomic absorption spectrophotometer.
MEETINGS ON ATOMIC ENERGY

An IAEA quarterly comes to the rescue. It is a listing of major meetings related to atomic energy planned throughout the world. It is an indispensable collection of information for universities, libraries and scientists.

The expanded use of atomic energy for peaceful purposes has evoked a large number of meetings on various topics about which all those interested should be informed. A comprehensive KWIC (key word in context) index enables a speedy selection of meetings in each particular field of interest.

The forthcoming issue will appear in October and the annual subscription rate is US $ 6.00, £ 2.50, F.Fr. 30, DM 19, AS 138.

For further information, or contribution to the contents of the publication, please write to:

The Editor
Meetings on Atomic Energy
International Atomic Energy Agency
Kärntnerring 11, P.O. Box 590
A-1011 Vienna, Austria