

Organisms and sea water were sampled in different areas of the northern and central Adriatic Sea from May 1986 to December 1987. The areas surveyed were the Gulf of Trieste, the Gulf of Venice, the coastal zone near Ancona and the western part of the "Fossa di Pomo".

Organisms and the water samples were prepared and analyzed by Ge-Li gamma spectrometry. In sea water only radiocesium was determined. On the other hand, several radionuclides from the Chernobyl fallout were determined in pelagic and benthic organisms belonging to different trophic levels of the Adriatic food-web.

The impact of the Chernobyl accident was more relevant in the northern Adriatic than in the central region; in fact, at the beginning of May 1986, the Cs137 concentration in sea water was about ten times higher in the Gulf of Trieste than near Ancona. In a similar way zooplankton, *Sardina pilchardus* and *Mytilus galloprovincialis* collected simultaneously in both zones, displayed different levels of radiocontamination (TASSI PELATI and ALBERTAZZI, 1986).

After May 1986, the variety of radionuclides in the organisms had greatly decreased; nevertheless, for several months it was possible to determine Cs137, Cs134, Ru103, Au106 and Ag110m (TASSI PELATI *et al.*, 1987). A significant decrease of Cs137 and Cs134 in sea water was observed during the winter months of 1986 and the first months of 1987 after the pycnocline broke down and the water masses became mixed. In the zooplankton there was also a quick decontamination because of the excretion processes and resultant element turnover (TASSI PELATI *et al.*, 1987). The rapid removal of Chernobyl fallout from surface waters by zooplankton activity was also observed near Corsica (FOWLER *et al.*, 1987).

It has been noted that, in the transfer to planktivorous fish such as *Sardina pilchardus* and *Engraulis encrasicolus*, the variety of the radionuclides was greater in the viscera than in muscle tissue; moreover, the radiocesium was transferred from viscera to muscle to a greater extent than radioruthenium. The distribution of Cs137 and Cs134 concentrations in *Sardina* and *Engraulis* has been studied in detail on samples collected every two months, from June 1986 to December 1987, in the Gulf of Venice. It has been established that *Sardina* accumulates more cesium than *Engraulis*. In both these species Cs137 was distributed in the following way: 60% in muscle, 15% in viscera, 25% in the head and internal skeleton (TASSI PELATI *et al.*, 1989), a distribution in good agreement with the literature (COUGHTRY *et al.*, 1985). Among the samples of the mussel *Mytilus galloprovincialis* from the different zones (Trieste, Venice, Ancona), those collected in the Gulf of Trieste near the mouth of the Timavo River were more contaminated than the others. Ru103 and Ru106 were more concentrated in the mussels than Cs137, Cs134 and Ag110m (TASSI PELATI *et al.*, 1987).

As expected, the littoral species in the Gulf of Trieste contained the highest levels of fallout. In fact, a typical rocky shore community *Enteromorpha*, *Fucus*, *Patella*, immediately after Chernobyl, contained the greatest number of radionuclides and the highest concentrations (TASSI PELATI and ALBERTAZZI, 1986). Concentrations decreased in the transfer from seaweeds to the limpet. This intertidal biocenosis was studied from 1986 to 1987 and the resulting radiocesium and radiosilver trends are noteworthy. For example, *Fucus* concentrated less cesium but more silver than *Enteromorpha*, and *Patella* contained concentrations of silver higher than those in the seaweeds upon which it feeds (TASSI PELATI *et al.*, 1992).

The phenomena which occurred in the Adriatic littoral community after Chernobyl has also been observed in biota from the British coast (CAMPLIN *et al.*, 1986).

Finally, for organisms from the coastal area near Ancona and the "Fossa di Pomo", it was possible to observe the different concentration capability for Cs137 in some species of fish in relation to their habitat and to their position in the food-web. For instance during 1986 in predator fish such as *Merluccius merluccius*, Cs137 concentrations were lower than in planktivorous fish like *Sardina*, while in 1987 the opposite was true. This clearly shows the usefulness of following the transfer of the most persistent contaminants in the longer-lived organisms which form the terminal steps of the marine food-web.

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