

SESSION IIIC

THE ACTUAL POLLUTANT
LEVELS AND THEIR TRENDS
PETROLEUM HYDROCARBONS

by

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Petroleum hydrocarbon pollution in the Mediterranean has a long history, since natural seepage, especially in the north-eastern area, is a well known process (LE LOURD, 1977). However, the petroleum hydrocarbons in Mediterranean arise mainly from human activities. Recent observations and measurements have shown that the Mediterranean is relatively more polluted than other world oceans (I.O.C., 1981). Papers submitted for this session confirmed this view, and mostly dealt with the actual pollutant levels in the Mediterranean. In the literature for the western and north-eastern Mediterranean regions there was a lack of data on floating tar. Two papers written by DE ARMAS and SAYDAM *et al.* provided some data. The reported pelagic tar values for the Alboran Sea is 0-25.6 ng m² and average 0.8 mg m⁻², which is within the limits reported by I.O.C. (1981). The data from the North-eastern Mediterranean is in the same range, except for Iskenderun bay where 33.4 mg m² tar is reported, and the estimated pelagic tar quantity within the Bay is 70 tons.

The quenching effect in U.V.F. was discussed by PICER, who reported D.D.P.H. in the waters of the Krka River Estuary and the Kornati Archipelago (Adriatic Coast of Yugoslavia). The paper by SAKARYA *et al.* included data on DDPH from The Sea of Marmara, Aegean and the North Levantine Basin of Mediterranean. The average highest DDPH was reported from Izmit Bay (The Sea of Marmara).

The trends of PAH's in the Patraikos Gulf and Achelos River Estuary (Greece) was discussed by MIMICOS *et al.* The authors measured PAH concentrations in the sea-water by utilizing UVF, starting from 1977 till 1983 and at several depths. According to their data, although there are seasonal variations, on average there has been approximately a four-fold decrease in the PAH concentrations within six years. Ahel's data deals with petroleum hydrocarbon concentrations in sea-water, sediment and mussel (*Mytilus galloprovincialis*) samples from the Rijeka Bay of Yugoslavia. The author compares the results from a polluted and an unpolluted region of the Bay, and concludes that water quality (in terms of petroleum pollution) is reflected in all samples. Another paper dealing with the pollutant levels in biota was presented by ALBAIGES *et al.* The paper also gives chlorinated hydrocarbon levels in fish samples, namely *Merluccius merluccius*, *Trachurus trachurus* and *Mullus barbatus* collected from the Spanish coast of the Mediterranean. Muscle, gonad and liver of three organisms were analysed by GC; the results suggest that petroleum hydrocarbons mainly accumulate in the liver.

Two detailed papers on petroleum hydrocarbons in the marine environment were presented by SICRE *et al.* Both groups used GC and GC/MS techniques to identify and quantify petroleum hydrocarbons in the western Mediterranean. SICRE *et al.* dealt mostly with non-volatile hydrocarbons at the sea-air interface, and identified and measured the quantities of n-alkanes. The n-alkane concentrations from

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the western Mediterranean in 1983 were found to vary between 0.3 and 5.0 $\mu\text{g l}^{-1}$ which is very close to the data reported for previous years, 1975-1978 from the same region, (U.N.E.P., 1980). However, the previous data was obtained by the IR technique where the concentration range was 0-5.0 $\mu\text{g l}^{-1}$. GRIMALT *et al.* analysed sediment samples obtained from coastal zones (Catalan coast) and tried to find a marker which indicates whether hydrocarbon is of natural or anthropogenic origin.

Information presented in this session (oral and poster together) made a valuable contribution to our understanding of the present levels of pollutants in the Mediterranean. Unfortunately all of the information deals with the northern coast of the Mediterranean, and there is no data or information for the Southern coast, especially the north African Coast.

The discussion was devoted mainly to two subjects. One of them was the quantity of papers submitted for organic pollutants. The speakers gave emphasis to the fact that most papers deal with non-organic pollutants such as heavy metals and there is less emphasis on organic pollutants, namely petroleum hydrocarbons and chlorinated hydrocarbons. The second important comment was on the type of organic pollutants studied. There has been insufficient data collected on the visible pollutants such as tar and other litter on coastlines and beaches.

References

- I.O.C. (1981). - Global oil pollution. The IGOSS Pilot Project on Marine Pollution (Petroleum) Monitoring. (E.M. Levy, M. Ehrhardt, D. Kohnke, E. Sobotchenko, T. Suzuki, A. Tokuhira) Intergovernmental Oceanographic Commission, Paris.
- LE LOURD P. (1977). - Oil pollution in the Mediterranean Sea. *Ambio* VI: 317-321.
- U.N.E.P. (1980). - Summary Reports on the Scientific Results of Medpol 1. U.N.E.P./IG.18/INF.3.