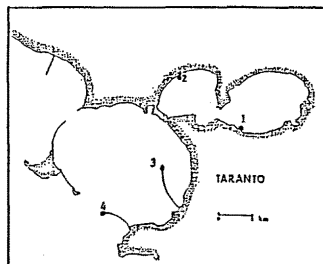
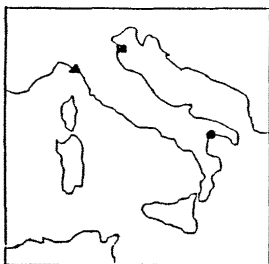


## Tributyltin levels in Mussels and sediments in Italian Coastal Waters

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Organotin compounds concentrations in marine environment and their effects on organisms have been studied since the eighties. Many data come from U.S.A. and Great Britain; several works have been made on "Imposex", mostly concerning *Nucella lapillus* (Gibbs et al. 1987). Viceversa it is not easy to find some literature about organotin compounds concentrations in water and organisms from the Mediterranean sea.

As the presence of such compounds is mainly due to naval antifouling paints, but also to biocides for agricultural and industrial use, we decided to make a preliminary survey in different environments.



● Taranto ▲ LaSpezia ■ Scardovari

Fig. 1 - The three coastal sites chosen in Italian waters and in the four sampling sites chosen in Taranto basins.

#### Material and methods.

We have chosen Taranto and La Spezia harbours because in both there are mussels cultivations. Both the harbours have an Italian Military Navy base. Mussels have also been collected from a cultivation located not near an harbour, in the Northern Adriatic sea: Scardovari lagoon, in the Po river delta.

The samples has been made in the first months of 1989. In Taranto, where the Institute is located, mussels samples have been made in different areas (Fig.1). In the same winter season sediment have also been analysed.

TBT and total tin have been determined by mean of atomic spectroscopy with Zeeman graphite furnace (Stephenson and Smith 1988).

Five subsamples containing 15 mussels were analysed for each sample, as well as 5 sediment samples have been analysed in each of the four sampling sites in Taranto.

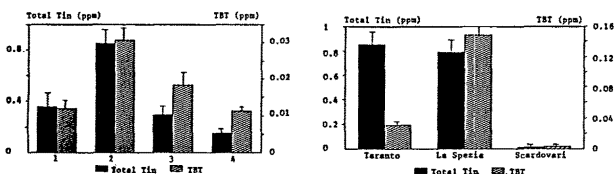


Fig. 2 - Total and Tributyl Tin concentration in the mussels of the four sampling sites in Taranto basins and in the three coastal sampling sites: Taranto, La Spezia and Scardovari.

As we can see in fig. 1, the presence of organotin compounds in the two considered harbours is by far higher than in the Po river delta. In particular in La Spezia harbour TBT values are about four times higher than those in Taranto. Being the total tin concentrations similar in the two harbours, one can think about a different status of degradation processes. We know, in fact, that TBT tends to become Dibutyltin, Monobutyltin and inorganic tin at the end. So higher values observed in mussels from La Spezia may be due to a recent TBT water contamination by antifouling paints not yet degraded.

Table 1. Total and Tributyl Tin concentration in sediments of the four sampling sites in Taranto basins.

Sampling sites	1	2	3	4
Total Tin (ppm)	0.137	0.362	0.529	0.402
TBT (ppm)	0.021	0.048	0.015	0.016

TBT values both in mussels and in sediments from the four sampling sites in Taranto basins show a pike at station 2, the nearest to the Navy Arsenal, and a decrease towards the open sea. On the contrary total tin tends to increase towards the open sea (Fig.2). Finally it is interesting that TBT accumulation in sediments, in the range between 0.02 and 0.05 ppm, is more homogeneous and only a little lower than in mussels. Mussels collected from cultivations far from ship traffic (Scardovari) show TBT values lower than one order of magnitude (0.003 ppm) at least.

Sea water TBT concentration and Organotin different degradation status both in Mussels and sediments, will contribute to understand better the true role and risks, for human beings too, caused by this kind of pollution.

#### References

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