

THE 'MYTILOTHECA' : A BANK OF 30 YEARS MUSSEL TISSUE SAMPLES COLLECTED ALONG THE FRENCH COAST IN THE FRAMEWORK OF THE MARINE ENVIRONMENT MONITORING

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ABSTRACT

The monitoring of the chemical quality of the French coastal zone rests on integrating matrices: living organisms and sediments. Analytical results acquired from these samples as part of the RNO (National Network of Observation of the Quality of the Marine Environment) have been accumulating since 1979, and now constitute a unique database on spatial distribution and temporal trends of the chemical contamination. Moreover, almost all of the samples collected within the RNO framework have been stabilised and are archived in a sample bank (approximately 10000 samples), the 'Mytilotheca'. These samples are available for retrospective studies of a particular contaminant. Unlike environmental archives like sediments, corals or mollusc shells, the mussel/oyster soft tissue is a recorder which is necessary to collect in real time, then to archive. This preservation requirement has as disadvantages on the one hand of being exhaustible, on the other hand to take into account only the recent history (the 30 last years). However, it offers the advantage of proposing very high resolution time series perfectly dated and thus constitutes a very interesting complement to sediment cores.

The 'Mytilotheca' has already been used in various retrospective studies dealing with coastal and global chemical contamination. Thus it was possible to study the past evolution of the aquatic environment contamination by PBDE as soon as the analytical procedure was available, or by silver, non routinely monitored, when a high contamination was detected in Northern France. It was also used when an oil spill occurred in France in 1999. The distribution of nickel and vanadium was studied in molluscs of the coast impacted as tracers of the oil contamination and the archived organisms gave *a posteriori* the state of the contamination of the littoral by these metals before the shipwreck. Very recently, after many publications dealing with the isotopic partition of lead as a tracer of the origin of lead in the environment, some time series were extracted from the 'Mytilotheca' in order to study the evolution of the characteristics of lead in the coastal marine environment lasting these 30 last years and in particular after the ban of leaded fuels.

KEYWORDS

Chemical contamination, monitoring, sample bank, retrospective studies