

Title

The **REMPAR** network, Background and objectives - Inventory of micropollutants (UV-filters and trace elements) in the Arcachon Bay and its tributaries.

Abstract

As part of the **REMPAR** network (Arcachon Bay's monitoring and expertise network on micropollutants), several families of micropollutants were investigated: UV filters (UVF) in bay's marine waters, and trace elements in bay marine waters and its tributaries' surface waters.

Analysis campaigns implemented in the 2015 and 2016 summers reported the presence of UVF at several hundred ng/L in the dissolved phase, and several hundred ng/g in the particulate phase; with a preponderance of octocrylene, avobenzone and DHHB in all compartments, and detection of EHMC in the particulate and sedimentary phases. The results show a strong temporal and geographical variability of the concentrations. A campaign conducted in the 2017 winter showed the occurrence of low levels of UVF, at the ten ng/L order. Following the project, and aiming at confirming these results, a series of 10 complementary campaigns on 20 beaches of the Arcachon Bay was conducted in the summer of 2018, and the results are being processed.

For trace elements grab samples campaigns (focused on 17 elements) and DGT (Diffusive Gradient in Thin-films) campaigns (focused on 11 elements) showed a concentration gradient towards the eastern part of the Basin for Co, Ni and Mn, the dissolved concentrations of these metals remaining lower than the environmental quality standards (EQS). Moreover, DGT results revealed a summer increase in Cu levels. The dissolved copper extrapolated concentrations from DGTs labile concentrations could exceed the predicted no effect concentration (PNEC) on one studied site in summer. This increase in summer Cu levels is related to its use in antifouling coatings and to an increase in water activities in summer. Management measures should be taken to limit the presence of antifouling in the Basin.

For tributaries, grab samples campaigns reported a marked geochemical background for Al and Co and to a lesser extent for As. With the exception of As, mean concentrations are below EQS for metal targeted in the chemical and ecological status of the Water Framework Directive. Overall, the acquired results do not support the assumption of an anthropogenic impact, although it should be carefully considered that trace elements may not be the more suitable markers of an anthropogenic contamination for the tributaries of the Arcachon Bay.

DGT campaigns in tributaries report an increase in the labile concentrations of several metal trace elements during the winter period, i.e. Al, Co, Fe and Ni, which is probably related to the hydrodynamic system of the territory and the resurgence of the water table.

Key words (thematic and geographical area)

Arcachon Bay; Marine waters; Coastal waters; Surface waters; Trace elements; DGT, UV-filters; Micropollutants.