INRAM – INTEGRATED RISK ASSESSMENT AND MONITORING OF MICROPOLLUTANTS IN THE BELGIAN COASTAL ZONE

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The INRAM project is an integrated project funded by the Belgian Science Policy to develop practical techniques and procedures to detect the risks of micropollutants occurring in the Belgian coastal zone. The underlying objective of the INRAM project is to develop a novel, multidisciplinary methodology – based on a suite of chemical, biological and ecological measurements – to evaluate the health of marine ecosystems.

To this end, an extended list of micropollutants will be analyzed in water, sediment and suspended solids of 18 sampling stations in the Belgian coastal harbours, the Belgian Continental Shelf and the Scheldt Estuary. In addition, body burdens of these compounds will be determined in biota (mussels, oysters, shrimps and flatfish). These will be linked with in situ biometric and biomarker responses in resident and transplanted organisms. Field samplings and in situ studies run over four years (January 2007 – December 2010). The field study allows an identification of potential problem chemicals which will be evaluated through laboratory exposures.

Preliminary results show organotin concentrations in the water column to vary within and between the harbours with maxima of up to 12ng.l⁻¹ in outer harbours and increasing up to 7ng.l⁻¹ in the inner harbours. The adverse effect of the presence of these micropollutants (and possibly other contaminants not yet analyzed) were studied in a pilot test with caged bivalves and in lab experiments with larval oysters. The health condition indicators of the caged oysters decreased significantly towards the inner harbour. The percentage of normally developed oyster larvae exhibited the same trend. These first results show the potential of a multidisciplinary approach in the risk/impact assessment and monitoring of the marine environment.