

## Comparison of Quality Indices for Sediment Assessment in Ireland

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**Abstract :** Sediment contamination is a major source of ecosystem stress and has received significant attention from the scientific community. Both the Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD) require a robust set of tools for biological and chemical monitoring. For the MSFD in particular, causal links between contaminant and effects need to be assessed. Appropriate assessment tools are required in order to make an accurate evaluation. In this study, a range of recommended sediment bioassays and chemical measurements are assessed in a number of potentially impacted and lowly impacted locations around Ireland. Previously, assessment indices have been developed on individual compartments, i.e. contaminant levels or biomarker/bioassay responses. A number of assessment indices are applied to chemical and ecotoxicological data from the Seachange project (Project code) and compared including the metal pollution index (MPI), pollution load index (PLI) and Chapman index for chemistry as well as integrated biomarker response (IBR). The benefits and drawbacks of the use of indices and aggregation techniques are discussed. In addition to this, modelling of raw data is investigated to analyse links between contaminant and effects.

**Keywords :** bioassays, contamination indices, ecotoxicity, marine environment, sediments

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