

Benthic Indicators: Criteria for Evaluating Scientific and Management Effectiveness

H.L. Rees^{*}, J. Sneddon and S.E. Boyd

CEFAS - Centre for Environment, Fisheries and Aquaculture Science Burnham Laboratory Remembrance Avenue,
Burnham-on-Crouch -Essex CM0 8HA - United Kingdom

*E-mail: H.L.Rees@cefas.co.uk

Case studies of the effects of human activities around the United Kingdom coastline were employed in order to evaluate a range of benthic indicators against scientific and management criteria governing their effectiveness. The number of species and the Shannon-Weiner diversity index produced the best overall performance, identifying impacts on the benthic macrofauna at all sites in the vicinity of known anthropogenic disturbance. Other indices were generally less effective even though some may have greater intrinsic potential to explain the causes as well as the occurrence of changes. In practice, all indices were dependent on the existence of adequate supporting environmental data and sound sampling design for effective interpretation. There is a need for versatility in the use of indicators of biological change, in order to compensate for the effects of local variability in natural and anthropogenic sources of disturbance. The adopted approach to performance evaluation appears to have practical value in meeting pressing environmental management needs and, with further refinement, may be suitable for wider application.