River Basin Management Plans

Benthic Invertebrates - Infaunal Quality Index - Transitional and Coastal Waters

December 2009

An Agency within the Department of the Environment
www.doeni.gov.uk

INVESTOR IN PEOPLE

NIEA Northern Ireland Environment Agency
www.ni-environment.gov.uk

SUMMARY PROFORMA FOR WATER FRAMEWORK DIRECTIVE
The purpose of this proforma is to summarise the tool

1. Project Details

Classification Tool	Benthic Invertebrates – Infaunal Quality Index (IQI)
Project Reference Number/s	EMC/WP15/043 & 052
Sponsor (task team/agency/project)	MBITT/EA/MTT
Water category	Transitional and Coastal Waters
Biological element	Benthic Invertebrates
Pressures the tool is sensitive to	General disturbance (particularly organic enrichment, hazardous substances)

2. Contact details

NIEA Project Manager	Tim Mackie
BTT Lead Name Organisation/Address Telephone Email	Alison Miles Environment Agency, NMMT, Kingfisher House, Goldhay Way, Orton Goldhay, Peterborough, PE2 5ZR 01733 464138 alison.miles@environment-agency.gov.uk

3. Criteria for assessing WFD classification tools (with respect to future tool adoption)

Classification Tool Criteria	Response
1) Please submit your EQRs	<table><tr><th>Boundary</th><th>EQR</th></tr><tr><td>High – Good</td><td>High ≥0.75</td></tr><tr><td>Good - Moderate</td><td>Good ≥0.64-0.75</td></tr><tr><td>Moderate – Poor</td><td>Mod ≥0.44-0.64</td></tr><tr><td>Poor – Bad</td><td>Poor ≥0.24-0.44</td></tr><tr><td></td><td>Bad <0.24</td></tr></table>
2) Have the boundaries been intercalibrated in phase 1 – please specify which have/haven't If there are components of the tool that have not been intercalibrated what is their influence with respect to the intercalibrated boundaries?	Coastal waters – subtidal muddy sand habitat only Transitional waters – 2nd round of Intercalibration (2007/2011), plus other habitat type boundaries
3)) Summary description and/or map of the types (please provide reference to more complex explanation, if necessary; page number specific!)	The Infaunal Quality Index (IQI) assesses ecological status based on the soft sediment infaunal communities of Transitional and Coastal waters, and forms part of the Benthic Invertebrate Biological Quality Element. The IQI is a multi-metric tool composed of: AZTI Marine Biotic Index, Simpson's Evenness, and number of taxa. Individual metrics have been weighted and combined to show changes in the benthic invertebrate community due to anthropogenic pressures. The tool operates over a range from zero (bad status) to one (high status). Each metric is compared to a reference value specified for that habitat type. Maximum values for habitat and sample type have been established using historic data and expert judgement. Class boundaries were defined using the behaviour of the benthic invertebrate communities over a quantifiable organic enrichment gradient from a sewage sludge disposal site. Intercalibrated boundaries for the IQI for coastal waters of specified habitat type, (subtidal muddy sands/sandy muds) and sample type ($0.1m^2$, 1mm mesh) have been agreed.

UKTAG Summary Proforma

Classification Tool Criteria	Response
4) Method used to establish the type-specific reference conditions for the tool	A combination of best available data and expert judgement
5) Is the tool covered by an existing CEN/ISO standards - if so, which one? Does it comply with the standard?	Yes EN ISO 16665
6) Why was the good/moderate boundary set at that level?	Initially set looking at AMBI groupings (taxa sensitivities) across a known anthropogenic impact gradient (sewage sludge disposal) and relating to the normative definitions. Normative definitions were expanded using expert judgement so that Species richness moderately reduced. Evenness/diversity moderately reduced. Community abundance – sensitive taxa (Group I) of negligible abundance or absent. Indifferent taxa (Group II) of low sub-dominant abundance. Tolerant taxa (Group III), Opportunistic Taxa (Group IV) and indicator taxa (Group V) co-dominate the abundance. Boundary was harmonised with other Member States through the NEAGIG process.
7) Please provide an "implications" of the classification, based on the best available data for any non-intercalibrated G/M EQRs Depending on the tool, this may include: • an initial estimate of water bodies in each class across the country (map and/or table); • estimates from trials of how the results are likely to compare with expectations (e.g. in relation to results from applying environmental standards) • how the results for the tool are expected to compare with intercalibrated results for other tools sensitive to the same type of pressure (i.e. more or less stringent)	Tool intercalibrated through NEAGIG, Draft Classification results not available until after end of March 2008.

Northern Ireland Environment Agency
17 Antrim Road
Lisburn
BT28 3AL

www.ni environment.gov.uk

Our aim is to protect, conserve and promote the natural environment and built heritage for the benefit of present and future generations.