

River Basin Management Plans

# Water Framework Directive Reporting Guidance – Marine Surface Waters Technical Supporting Document

The Classification of Ecological Potential for Heavily Modified  
Transitional and Coastal Water Bodies in Northern Ireland

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## **1. Introduction**

The Water Framework Directive (WFD) allows Member States to identify surface water bodies which have been physically altered by human activity and designate them as heavily modified water bodies (HMWB). If the uses of such water bodies (e.g. navigation, port or harbour, or flood defence) would be significantly affected by the mitigation measures required to achieve good ecological status (GES) and if no other better environmental options exist, then these water bodies can be designated as heavily modified and 'good ecological potential' (GEP) is set as an environmental objective.

## **2. Designation of Heavily Modified Water Bodies**

Heavily modified transitional and coastal water bodies in Northern Ireland were identified using a combination of methods including the Scottish Environment Protection Agency (SEPA) Rapid Designation Technique, the Morphological Impact Assessment System (MImAS) tool and expert judgement.

This resulted in two coastal water bodies (Larne Lough North and Belfast Harbour) and six transitional water bodies (Foyle and Faughan, Bann, Lagan, Connswater, Quoile, and Newry) being classified as heavily modified (Figure 1).

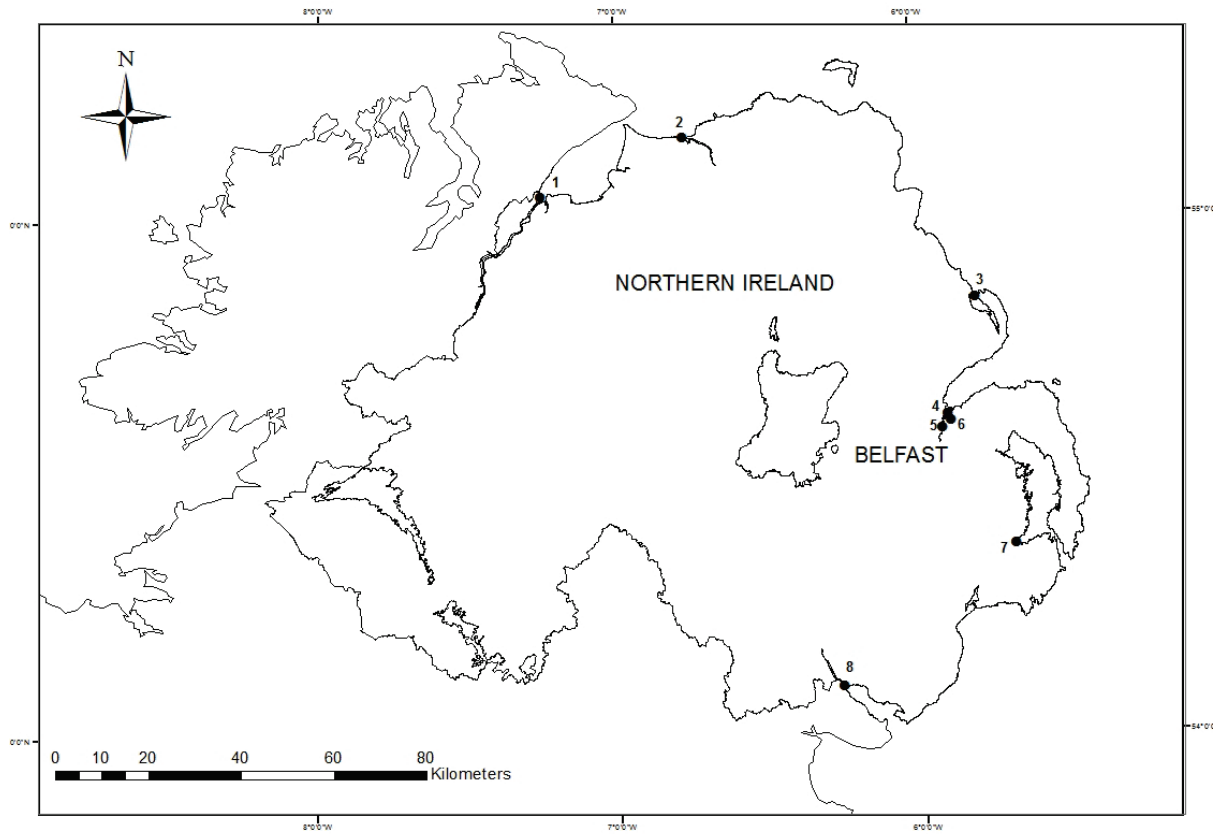


Figure 1. Location of heavily modified waterbodies in Northern Ireland; 1-Foyle and Faughan, 2-Bann, 3-Larne Lough North, 4-Belfast Harbour, 5-Lagan, 6-Connswater, 7-Quoile, 8-Newry.

### **3. Establishment of Ecological Potential**

The ecological potential of each HMWB was established following the WFD United Kingdom Technical Advisory Group (UKTAG) guidance on the classification of ecological potential for heavily modified water bodies and artificial water bodies ([http://www.wfduk.org/sites/default/files/Media/Classification%20of%20ecological%20potential%20for%20HMWBs%20and%20AWBs\\_Final\\_310308TAG%20guidance.pdf](http://www.wfduk.org/sites/default/files/Media/Classification%20of%20ecological%20potential%20for%20HMWBs%20and%20AWBs_Final_310308TAG%20guidance.pdf) )

The guidance assesses the ecological potential of each HMWB based upon the use of generic checklists for various water use sectors. These include ports and harbours, water storage and supply, inland navigation, and flood risk management. The checklists consider mitigation measures for each water use sector that could increase the ecological potential of a water body. This excludes those measures that are considered not practicable given the characteristics of the water body, as well as those that will have a significant impact on the use to which the water body is put, and measures that will have a significant impact on the wider environment (e.g. conservation or historic interests).

Where all appropriate measures are in place, the water body will be defined as supporting the achievement of good ecological potential (GEP) or better; in cases where mitigation measures are still required, the water body will be classed as Moderate Ecological Potential (MEP) or worse. Within the coastal and transitional water environment, water use sectors included ports and harbours and flood risk management. All HMWBs were classified as capable of supporting good ecological potential or better (GEP).

### **4. Classification of Ecological Potential**

The UKTAG guidance recommends that the assessment of ecological condition (or potential) of heavily modified water bodies should be based only on those biological quality elements that are minimally affected by the hydromorphological alterations (UKTAG, 2008). The biological quality elements monitored in each HMWB was reviewed and assessed in relation to their sensitivity to the various hydromorphological pressures operating in each water body and their applicability for classifying ecological potential (Table 1).

Table 1. Biological quality elements monitored in coastal and transitional heavily modified water bodies and their suitability for assessing ecological potential.

<b>HMWB</b>	<b>Phytoplankton</b>	<b>Macroalgae</b>	<b>Angiosperms</b>	<b>Benthos</b>	<b>Fish</b>
Larne Lough North	Yes	Yes	N/A	Yes	N/A
Belfast Harbour	Yes	Yes	N/A	Yes	N/A
Foyle and Faughan	Yes	N/A	N/A	Yes? (TUD)	Yes
Bann Estuary	Yes	N/A	N/A	No	Yes
Lagan Estuary	Yes	N/A	N/A	Yes? (TUD)	Yes
Connswater	Yes	Yes	N/A	Yes? (TUD)	Yes
Quoile Pondage	No	No	No	No	No
Newry Estuary	Yes	Yes	N/A	Yes? (TUD)	Yes

As the Quoile Pondage is essentially an impoundment with little or no regular connection with the adjacent marine environment, no biological quality elements were considered appropriate for monitoring this system. The Quoile system is monitored and classified based on dissolved oxygen only.

The use of angiosperms was not applicable to any of the remaining water bodies while macroalgae was not applicable in the Foyle & Faughan, Bann and Lagan transitional waters.

Fish are not required to be monitored in coastal water bodies, however, their application in transitional waters was considered appropriate given that connectivity with the marine environment is maintained and they are able to perform an estuarine nursery function. The use of phytoplankton, which is only sampled in appropriate salinity ranges, was considered appropriate for all water bodies. While benthic invertebrates are affected by dredging activities, this group was considered appropriate if sampling was restricted to areas outside of the dredged channels. The use of benthic invertebrates to monitor transitional waters is still under development and the utility of this group in NI transitional waters will require further developmental work in the WFD 2<sup>nd</sup> cycle.