SWRBD

Heavily Modified Water Bodies & Artificial Water Bodies

POMS Study

Progress Update in support of the SWMI Report – June 2007.

AWB	Artificial Water Body
CIS	Common Implementation Strategy
EPA	Environmental Protection Agency
GES	Good Ecological Status
GEP	Good Ecological Potential
HMWB	Heavily Modified Water Body
pAWB	provisional AWB
pHMWB	provisional HMWB
RBMP	River Basin Management Plan
SWRBD	South Western River Basin District
UKTAG	United Kingdom Technical Advisory Group
WFD	Water Framework Directive

THE RATIONALE FOR THE STUDY

The 'heavily modified' and 'artificial' water body terminology has its origin in Article 4 (3) of the Water Framework Directive (WFD). Under this paragraph of the Directive, Member States may, under specific circumstances, identify surface water bodies which have been physically altered by human activity as "*heavily modified*" and water bodies which have been created by human activity as "*artificial*". The quality objective for water bodies designated as Heavily Modified Water Bodies (HMWB) and AWB is at least Good Ecological Potential (GEP). Surface water bodies that are not designated are treated as 'natural' water bodies and must achieve at least Good Ecological Status (GES).

Ireland identified 37 'provisional' Heavily Modified Water Bodies (pHMWB) and 37 provisional Artificial Water Bodies (pAWB) in the Article 5 Characterisation Report submitted to the EU in March 2005. As provisional HMWB and AWB, they were identified by the pressures and impacts analysis and expert opinion, as being incapable of achieving GES but, as yet, have not been subjected to the tests to confirm that they meet the specific criteria permitting their full designation. A breakdown of the numbers of cases identified as pHMWB and pAWB in each surface water category, along with the scenarios they represent, is provided in tables 1.1 and 1.2 below.

Table 1.1: pHMWB: Modification scenarios represented by Article 5 pHMWB.

Category	Modification	No	Specified Use-breakdown
River	Artificial Bed	2	1 flood protection
			1 protection of wider environment from contaminated sediment
	Impoundment	5	3 drinking water supply
			1 power generation
			1 power generation & drinking water supply
	Tidal Barrage	2	2 flood protection
Lake	Abstraction	2	2 Drinking water supply
	Impoundment	13	4 drinking water supply
			6 power generation
			3 power generation & drinking water supply
Transitional	Flood Defence Works	2	2 flood protection
	Impoundment	1	1 public transport infrastructure
	Port & related activities	7	7 port
Coastal	Port & related activities	3	3 port

Table 1.2 pAWB: Created water body scenarios represented by Article 5 pAWB

Description	No. of Water Bodies
Canals	36
Reservoir	1

The identification of pHMWB and pAWB marked the conclusion of steps 1-6 of an 11-step process outlined in EU Common Implemetation Strategy (CIS) guidance. The scope of the HMWB & AWB POMS study covers steps 7-11, taking the identified provisional HMWB and AWB through the applicable designation tests and supporting the EPA in the establishment of environmental quality objectives for designated water bodies.

The study is being completed under an extension to the brief of the South Western River Basin District Project (SWRBD) and is programmed to deliver to the draft River Basin Management Plan (RBMP) (2008).

THE OBJECTIVES

The primary objective of the HMWB & AWB POMS study is to develop and apply the required designation tests to confirm the provisional listings of pHMWB and pAWB included in Ireland's Article 5 Characterisation Report. The designation tests are specified under Article 4(3)(a) and (b). Protocols for their application will be trialled on a pilot basis, initially, and then extended to all provisional cases, nationally. Ultimately, the study will deliver decisions regarding the designation or non-designation of water bodies. For cases designated, the

study will support the EPA in setting the water body-specific quality objective of Good Ecological Potential.

THE APPROACH / METHODOLOGY

The study terms of reference, as agreed by the Programme of Measures & Standards Co-ordination Group, are being progressed on the basis of 5 work packages as follows:

Work Package 1: Literature Review and Bench Marking
Work Package 2: Data collection & selection of test cases
Work Package 3: Development of Protocols for Test Cases
Work Package 4: National Application
Work Package 5: Support MEP/GEP

An additional work package was appended to the scope and approved by the PCG in October 2006.

Work Package 6: Further Characterisation of Canals

WP1: Literature Review and Bench Marking.

The literature and benchmarking review is the first step towards executing the study brief. The aim of the literature review is to identify the scope and applicability of literature and guidance currently available in relation to the designation of HMWB and AWB and extract the most useful information from that available for the development of the Irish approach. The objective of benchmarking is to undertake an appraisal of consistency in the proposed approaches across Member States, with particular focus on Ecoregion 17 and 18; Northern Ireland, England, Scotland and Wales.

WP2: Data collection & selection of test cases

The terms of reference stated that the study should gather preliminary information on all cases identified under Article 5. Pilot pAWB and pHMWB cases suitable to test steps 7-11 of the CIS designation process and development the approach would be selected based on this information. The objective is that test cases would be representative of the various qualifying uses. In addition, there were some unique situations which lead to pHMWB identification, each of which will be examined at the appropriate level of detail to determine if the criteria for designation are met.

WP3: Development of Protocols for Test Cases.

The development of protocols for test cases includes the identification of data requirements and the development of a methodology for subjecting them to the designation tests specified under Article 4(3)(a) and (b):

- procedures for the assessment of restoration measures (HMWB only);
- procedures for applying the alternative means tests; (HMWB & AWB)

The development of the approach aims to adopt the principles of available European guidance and the findings of the literature and benchmarking review.

WP4: National Application.

Rollout is scheduled to take place once all scenarios have been addressed by a representative test case pHMWB. Rapid decisions will be applied where justified by clear-cut cases, and more detailed examination will be undertaken where required. It is envisaged that each case will present new questions and possibly new data requirements; these will be brought to the group for discussion and approval of decisions as encountered. The study will apply these protocols to all RBDs' provisionally identified cases to produce confirmed lists of HMWBs and AWBs feeding into the objectives/derogations element of the draft RBMP.

WP5: Support MEP/GEP

The EPA is tasked with the establishment of MEP and setting GEP for designated water bodies. In accordance with the agreed brief, the study team supports the EPA in this undertaking.

WP6: It was indicated by the WFD Canals working group that further characterisation of canals was required prior to their examination under the relevant designation test. The group, comprises representatives from the EPA, Waterways Ireland and the Central Fisheries Board. The task includes an appraisal of consistency in reporting of canals across RBDs, the inclusion of summit points as AWB boundaries, and refining their delineation in the national GIS layer. The task was regarded as relevant and appropriate for inclusion in the HMWB & AWB POMS study and its addition to the brief was approved by the PCG.

PROGRESS TO DATE

WP1: Literature Review and Bench Marking.

The literature and bench marking review has been completed and was approved in June 2007. Version 1 has been uploaded to the POMS Tracker document management system for the acceptance of the PCG at its next meeting in September '07. New literature and/or guidance will be reviewed and updates incorporated towards Version 2 in due course.

WP2: Data collection & selection of test cases

Preliminary information was gathered from the RBD projects to confirm the specified uses and the modification for which each pHMWB was identified. Two test cases were identified, initially, for examination; a pHMWB case identified due to a port and related activity; Port of Cork, and a pHMWB associated with hydropower; Ardnacrusha. Test Cases 3 and 4 were subsequently selected with the particular objective of trialling cases with potential requirement for more detailed economic assessment. These were the pHWMBs associated with the Fergus Tidal barrage and the Feale and Cashen Estuaries flood protection works. In both cases it was estimated that land use and values would require examination. From the remaining specified uses it was proposed that an abstraction case be next; Lough Salt in the NWRBD was selected.

The current status of this work package (June '07) is that five test case studies have been examined. Unique modification scenarios which lead to pHMWB identification will be examined during summer '07. Once completed, all 37 pHWMBs will have either been examined directly or represented by a test case with a comparable specified use.

The selection of a pAWB test case was confirmed; the Grand Canal was selected and will be brought through the substeps associated with the 'alternative means' designation test. Examination of this case has not yet commenced.

WP3: Development of Protocols for Test Cases.

The development of protocols for application to the test cases was guided by CIS guidance and the findings of the literature review and benchmarking study. Guiding principles learned through the literature review were noted and the methods used to comply with the requirements of the designation tests were pragmatic and proportionate to the complexity of the cases. CIS Guidance states that "*purely descriptive methods can be used where a water body is obviously substantially changed in character*". Sub-steps of the CIS guidance approach were followed and information was subsequently fed into the relevant UK TAG Rapid-Case Designation Tool decision tree to illustrate the juncture in the process at which decisions to designate were proposed, in each case.

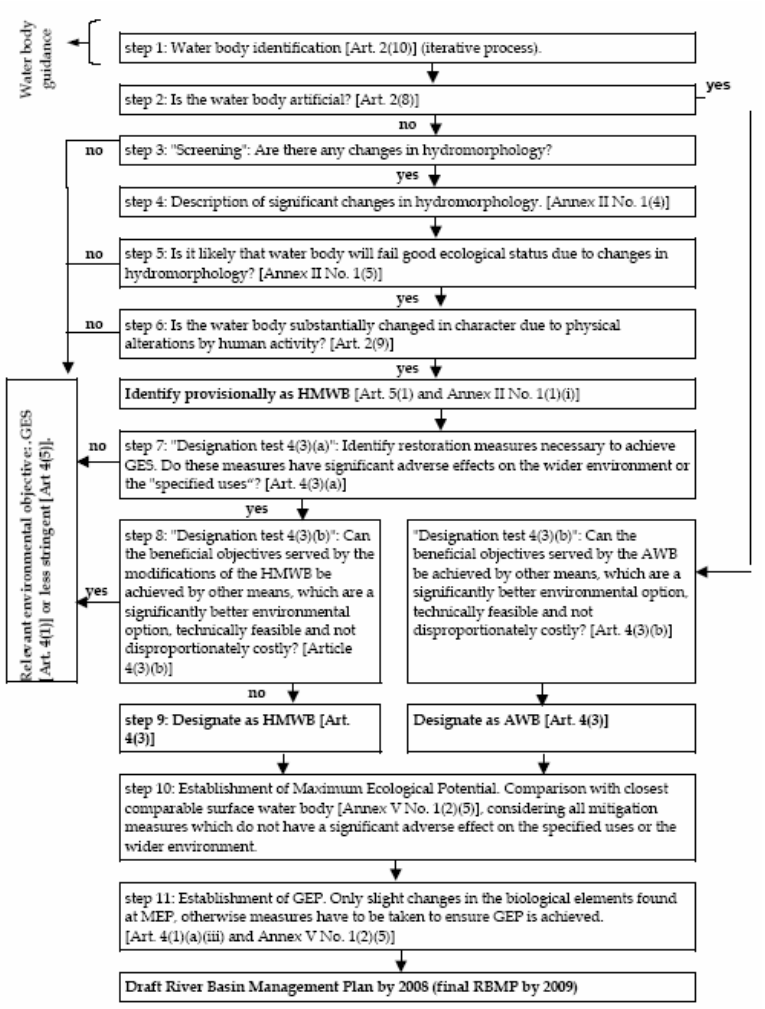

Figure 1.1 The CIS Stepwise Approach

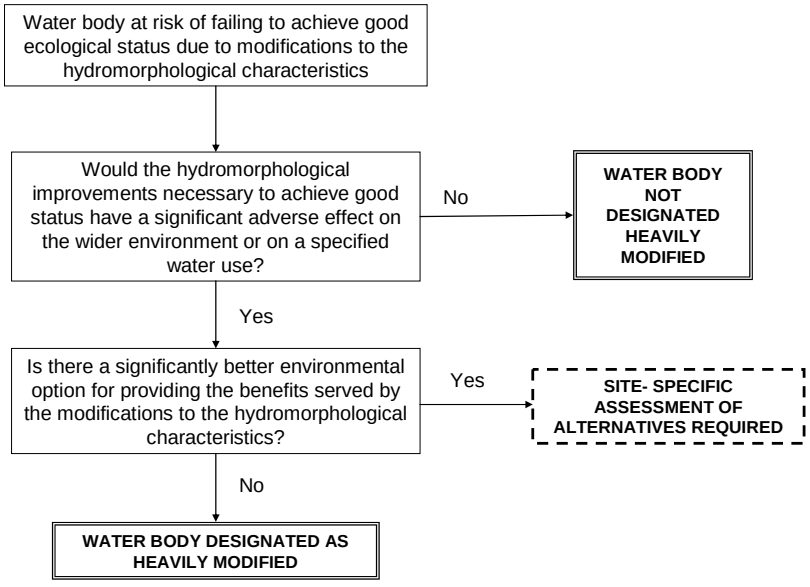

Figure 1.2 The UK TAG Rapid Screening Methodology

WP4: National Application.

National application of protocols is scheduled to take place once all scenarios have either been examined or represented by a test case of its specified use. As per the UKTAG approach, rapid decisions to designate or not designate will be applied where it can be demonstrated that this is justified. Decisions will be backed-up with case information. To facilitate a rapid assessment approach, the process followed for test cases will be tracked in a spreadsheet. Under each test case, pHMWB from the national list with the same specified use or modification will be entered and decisions applied where the test case has demonstrated this is possible. As mentioned above, it is envisaged that each case will present new questions and possibly new data requirements; these will be brought to the group for discussion and approval of decisions as encountered. The final HMWB list will require approval/sign-off from the group prior to acceptance by the PCG.

WP5: Support MEP/GEP

According to the study specification, the study team will support the EPA in establishing Maximum Ecological Potential and Good Ecological Potential for designated water bodies. To date, this support has included the preparation of a specific report on guidance and developments in relation to the setting of objectives for designated water bodies at an EU level and in other Member States, with particular focus on Ecoregions 17 & 18 with a view to harmonising approaches. Contact is maintained with UK and Northern Irish agencies to channel updates on sectoral mitigation measures projects

Participation by the study team on the WFD Canals Working Group will provide support in terms of quality objectives for AWB; all but one of Ireland's 37 pAWB are canals.

WP6: Further Characterisation of Canals:

Thirty seven pAWB were identified and reported in the Article 5 characterisation report. The list comprised 36 canals and one reservoir. The canals reported required some further characterisation before being examined under the relevant designation test. This was undertaken under the HMWB & AWB POMS Study. Amendments made to the national dataset included deletions where further investigation indicated that the water body was a canalised river rather than a dry cit canal; additions where dry cut canals had been omitted from the list; edits taking summit points into account; introducing consistency to the reporting and delineation of canals and the assigning of a unique code to all reported canals.

ANY EARLY INDICATIONS OF RESULTS / CONCLUSIONS.

Decisions and conditions regarding the designation of water bodies modified for various specified uses are as summarised in table 1.1, below.

Tale 1.3 Summary of decisions regarding designation according to specified use

Specified Use	Decision & conditions
Port & related activities	Criteria for designation are met in most cases. Measures for the softening of port structures might be suitable in situations where there isn't a dual flood protection role played. For most cargo types and tonnages, no alternative means is available which is technically feasible or a significantly better environmental option serving. To be considered and supported with qualitative and quantitative information at various scales as presented by pHMWB cases.
Hydropower Impoundment	Many of Ireland's hydropower stations are assigned within our Blackstart Protocol and no alternative means which is a significantly better environmental option exists to fulfil this role. Potential barrier impacts on upstream and downstream fish migration are of concern to Fisheries Boards and measures should be considered on a case by case basis.
Flood protection	Economic assessment justifies designation where land use in flood defended areas is urban and/or residential or includes important transport infrastructure elements. Agricultural land use in flood defended areas presents an opportunity for the application of restoration measures. Setting back or totally removing the flood defence/embankment is an option to be considered on a case by case basis.
Drinking water supply; impoundment and /or abstraction	Pending.

A rapid designation approach is expected to facilitate the roll-out of these decisions to clear-cut cases. Case specific studies will be required in some of the cases yet to be identified