

## 10 RECOMMENDATIONS FOR THE DESIGN OF THE PROGRAMMES OF MEASURES

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The objectives of this chapter are to:

- Recommend how Ireland's TraC water bodies may be prioritised for the application of appropriate morphological measures with the aim of achieving WFD objectives by 2015; and
- Recommend how appropriate morphology measures can be identified to achieve these objectives; together with achievement (restoration) and protection (preservation) of good and high morphological (and therefore ecological) status.

In meeting these objectives, the information outlined in this chapter, read in conjunction with Chapters 7 (Good Practice) and 11 (Recommended Regulatory Decision Support), is used to develop appropriate recommendations for the design of morphology related PoMs.

Firstly, the WFD requirements for PoMs are outlined. Then, following a review of relevant legislation, a method for the prioritisation of TraC water bodies suitable for the assessment of appropriate measures is recommended. Using information available at

the time of writing, this method was applied to Irish TraC water bodies and the potential objectives for all 309 water bodies are assessed.

With regard to the preservation of status, Chapter 11 leads on from this chapter to define how the deliverables of this study can supplement the existing framework for the future mitigation and regulation of physical alterations.

The recommendations made in this chapter are generic and are not outlined specifically for each prioritised water body.

Appendix 11-1 tabulates a summary of proposed measures identified as relevant for marine morphology within the template required for reporting to the National PoMS Co-ordination Group.

## 10.1 Introduction to the Requirements for a Programme of Measures

The WFD River Basin planning cycle comprises four key elements:

1. Characterisation and assessment of impacts on River Basin Districts.
2. Environmental monitoring.
3. Setting environmental objectives.
4. Design and implementation of programmes of measures required to achieve the objectives.

The characterisation and assessment of impacts regarding Ireland's TraC water bodies is addressed via the initial and further characterisation process, as outlined in Chapters 1, 3 (Data Review), and 6 (Further Characterisation) of this report. On completion of all PoMS studies, national data will be compiled and used to assess RBD specific water management issues.

Existing and proposed monitoring relating to morphology is discussed in Chapters 4 and 9 of this report. On completion of appropriate monitoring (and PoMS studies), results will be collated to inform the setting of default environmental objectives, i.e. by classifying water body status. All water bodies will then have a quality status class which will require improvement or maintenance in accordance with Article 4 of the WFD (responsibility of the Local Authorities).

The WFD requires the setting of objectives for all water bodies, compliance with standards and objectives set for protected areas i.e. designated nature conservation sites, shellfish waters, bathing areas etc, and the implementation of cost effective programmes of measures to meet those objectives. The Directive recognises that under specific circumstances it may not be realistic to set 2015 as the deadline for achieving 'good status' for all water bodies by allowing (strictly conditional) derogations where alternative objectives can be set. Decisions about the use of alternative objectives must be based on the factors set out in Article 4 of the WFD, including consideration of the technical feasibility and of costs and benefits of implementing the measures which would be necessary to achieve the WFD objectives in a given water body.

Article 11 of the WFD sets out the requirements for the establishment of PoMs in order to achieve the objectives set out in Article 4. Of relevance to marine morphology, Member States are required to implement the necessary measures to:

- prevent deterioration of the status of all bodies of water (Article 4(1)(a)(i));
- then protect, enhance and restore all bodies of surface water with the aim of achieving good surface water status by 2015 (Article 4(1)(a)(ii)); and
- comply with the standards and objectives for Protected Areas (Article 4(1)(c)).

To prevent deterioration in the existing status of waters, the risks to priority waters should be assessed to determine their likely status by 2015 (taking into account the effectiveness of full compliance with existing directives). Section 10.5 of this chapter recommends how TraC water bodies can be prioritised for consideration of PoMs, and using the information available at the time of writing, this method was applied to all 309 TraC water bodies. Tables 10.1 and 10.2 in this chapter identify those TraC water bodies considered to be of priority for the application of measures by listing the predicted default objectives. The results of TraC-MImAS are expressed as status class boundaries, however, it is important to clarify that the use of these 'status' terms in further characterisation indicates **risk** to status class only, and does not represent classification results (e.g. a result indicating 'Good' should be interpreted as have no risk to the achievement of good ecological status). The potential risks to existing [risk] status can be determined following assessment of the pressure layers generated by this study and the results of TraC-MImAS. Appropriate PoMs to prevent deterioration of status can then be identified.

With regard to the restoration of water bodies to at least Good Ecological Status (GES), there may be some circumstances where it is technically infeasible or disproportionately expensive within the first River Basin Management cycle. Where it can be demonstrated that restoration is not possible (technically infeasible or disproportionately costly) mitigation measures should be investigated with the aim of meeting Good Ecological *Potential* (GEP).

In consideration of protected areas, DEHLG have advised that when the *'EPA classifies a surface water body associated with a protected area, failure of the water body to achieve the water related objectives of the protected area will result in the surface water*

*body being classified as less than good regardless of whether other objectives are met'* (DEHLG, December 2007). Article 4(2) of the WFD requires that where more than one of the objectives of Article 4(1) (including that for protected areas) relate to a water body, the most stringent shall apply.

Article 11(2) of the WFD requires that the PoMs, to be presented in summary form in the RBMP, “shall include the ‘basic’ measures” and, “where necessary, ‘supplementary’ measures”.

On completion of the national PoMS studies, appropriate technical options for proposed measures can be combined with economic studies to determine the most appropriate and cost effective PoMs for each River Basin District. PoMs will be set out in the draft RBMP in December 2008 for public consultation, then confirmed in the first RBMP in December 2009, and should be implemented by June 2012. PoMs should aim to achieve the required objectives by 2015 at the end of the first River Basin Management cycle, and be revised where necessary for the next cycle.

Throughout this Chapter, the term ‘measure’ can refer to both the physical actions required to achieve objectives e.g. Good Practice measures (as outlined in Chapter 7), as well as the mechanisms required to recommend and / or enforce these actions e.g. formal guidance, statutory consultation, and/or legislation. The ‘physical actions’ should consist primarily of *supplementary measures* whereas mechanisms can be addressed by either *supplementary* or new *basic measures*. Both basic and supplementary measures are discussed later in this section.

The definitions of ‘measures’ provided in Chapter 7, and outlined below, refer to the physical actions required on the ground (supplementary measures):

- General good environmental practice and management plans; such as the implementation and maintenance of sectoral Environmental Management Systems and monitoring programmes e.g. by port companies.
- Mitigation measures; such as the planning of the timing, frequency and extent of dredging activities.
- Restoration measures; such as the recreation of intertidal mudflats lost through land claim or coastal protection and defence structures.

- Natural recovery - although unlikely to contribute significantly to the first RBMP, natural recovery can be the most cost-effective and sustainable approach to achieving WFD objectives.

For the purpose of this study, the mechanisms required to implement measures can be defined as the existing and future decision and evaluation processes in place to assess physical modifications with the aim of protecting morphology [and ecology]. New basic measures for the control of physical modifications may be required in addition to these mechanisms, and supplementary measures, such as the improvement of guidance, can enhance the ability of these mechanisms to protect, restore and improve status. With regard to the future regulation and protection of status, Chapter 11 of this report should be referred to as it outlines how the deliverables of this study. The TraC-MImAS tool, can enhance and support the existing framework for future physical modifications to Ireland's transitional and coastal waters.

#### 10.1.1 Basic Measures

Basic measures are the minimum requirements to comply with (Article 11(3)) and include existing EU legislation and controls on major pressures. The role of basic measures is to ensure legal compliance and implementation of existing European Directives, outlined in Annex VI (Part A) of the WFD. Ireland has implemented Basic Measures by adopting the EU Directives listed and has integrated the relevant water legislation under the implementation of the Water Framework Directive (S.I. No. 722 of 2003).

Those directives to be included in the PoMs, as prescribed in Annex VI, are outlined below with those of particular relevance to morphology emphasised in bold italics:

- The Bathing Water Directive (76/160/EEC)
- ***The Birds Directive (79/409/EEC)*** (relating to the protection of habitats of importance to protected birds)
- The Drinking Water Directive (80/778/EEC)
- The Major Accidents (Seveso) Directive (96/82/EEC)
- ***The Environmental Impact Assessment Directive (85/337/EEC)***

- The Sewage Sludge Directive (86/278/EEC)
- The Urban Waste-Water Treatment Directive (91/271/EEC)
- The Plant Protection Directive (91/414/EEC)
- The Nitrates Directive (91/676/EEC)
- **The Habitats Directive (92/43/EEC)**
- The Integrated Pollution Control Directive (96/61/EC)

In addition to those directives listed in Annex VI, it is anticipated that pending relevant European Directives ratified since the WFD will also be implemented under the basic measures (Article 12 (3), S.I. No. 722 of 2003). Those of particular concern to marine morphology are considered in Section 10.2 below, and include:

- The Floods Directive (2007/60/EC)
- The Environmental Liability Directive (2004/3/EC)
- The Marine Strategy Directive (draft) (Resolution 9388/2/2007)

A summary of the corresponding national and local legislation is provided in Section 10.2.2.3.

In addition to the above, and of relevance to morphology, the WFD also allows for the implementation of new basic measures relating to controls on abstraction and impoundment of freshwater (Article 11(3)(e), and measures to *'ensure that the hydromorphological conditions of the bodies of water are consistent with the achievement of the required ecological status'* (Article 11(3)(i).

DEHLG (December 2007) require an assessment of the effectiveness of new basic measures in meeting the objectives to be undertaken, and note that any gaps in meeting the required objectives should be identified and addressed through supplementary measures directed at the pressures causing the failure. The potential for new basic measures relating to morphology is introduced in Section 10.2.2 of this chapter and, as noted previously, recommendations relating to the future regulation of pressures are detailed in Chapter 11. Supplementary measures, defined below, were introduced and detailed in the Good Practice Review in Chapter 7. Recommendations for appropriate supplementary measures to support basic measures are outlined throughout Section 10.2 with relevant conclusions in Section 10.4.

### 10.1.2 Supplementary Measures

Where it is concluded that the full application of the basic measures is not adequate to meet the objectives of the WFD, supplementary measures can be considered. Supplementary measures can enhance basic actions to achieve water objectives, and may include optional measures such as legislative, administrative or economic instruments, negotiated environmental agreements, codes of good practice, recreation and restoration of wetland areas, efficiency / reuse measures and education and partnership projects (Annex VI Part B). In relation to morphological conditions; supplementary measures should include site specific intervention such as actions to remediate or mitigate for particular physical modifications or developments.



## 10.2 Existing Legal Framework Relevant to Morphology in TraC Waters

This section summarises the existing legislative framework, i.e. the existing mechanisms, which is of relevance to morphology and governs the development and use of Irish TraC waters, at International, European, National, Regional, Local and at project level.

The applicability of the existing legislation facilitating compliance with WFD objectives is then assessed in relation to morphology, and, where relevant, recommendations for how morphology may be considered more appropriately within this framework are made, primarily through the use of new basic measures and supplementary measures.

Supplementary measures recommended in this section relate to the enhancement of these mechanisms. Chapter 7 should be referred to for a comprehensive review of appropriate good practice for supplementary measures aimed at the restoration of morphological conditions and mitigation of morphological pressures.

Recommendations specific to the regulation of future coastal developments and activities are discussed further in Chapter 11. To assist the reader in considering the benefits of these recommendations, Chapter 11 also provides an example of how they can support the existing regulatory framework in the assessment of a proposed harbour development within a water body of High Ecological Status (HES).

The following broad review of existing measures governing the morphology of Irish TraC waters is not intended to be a comprehensive nor detailed analysis of TraC legislative frameworks. A full detailed assessment of the effectiveness of marine legislation should be carried out at such time as the revision of the existing regulatory frameworks is undertaken.

### 10.2.1 Responsible Bodies Governing Irish TraC Waters

As noted previously, following the general elections held in May 2007, various responsibilities relating to coastal waters were transferred between government departments. This resulted in the formation of the new Department of Agriculture,

Fisheries and Food (formerly the Department of Agriculture and Food, transferred under S.I No. 705/2007) to which certain functions of the former Department of Communications, Marine and Natural Resources (DCMNR) under the Foreshore Acts (1933 – 1998) have been transferred. The DCMNR has now changed to the Department of Communications, Energy and Natural Resources (S.I No 706/2007). Therefore, coastal developments in Ireland are currently governed by the Department of Environment, Heritage and Local Government (DEHLG); local authorities; the Department of Agriculture, Fisheries and Food (DAFF); and the Department of Communications, Energy and Natural Resources (DCENR).

To ensure the appropriate consideration of morphology (and the WFD as a whole) for Irish TraC waters, **confirmation of the structure and functions of all responsible bodies is of foremost importance.**

### 10.2.2 Legislative Structure Governing Irish TraC Waters

A detailed review of the interrelation and integration of national, EU and international water related policies and laws is beyond the scope of this study. However, this section aims to identify those that will potentially be of most significance to morphology and the implementation of and compliance with the WFD.

On a national basis, the objectives of the WFD can only be achieved if plans and programmes in other relevant policy areas are coordinated and integrated. Such plans and programmes should include Habitat and Species Protection Plans (conservation management plans) under the Habitats Directive, strategic National Development Plans and related Local Plans, and Flood Management Plans.

The RBMPs are subject to Strategic Environmental Assessment (SEA) which will help ensure that the wider environmental considerations are integrated into these plans.

#### 10.2.2.1 Governing Legislation – International

The WFD requires that basic measures should include those required to implement Community legislation (Article 11(3)(a)). However, it is important to note that specific

sectors, such as the ports and navigation sector can be substantially governed by various international laws and policies in addition to Community legislation, consideration of which may be appropriate when proposing measures.

In relation to the protection of ecology supported by morphological conditions, the RAMSAR Convention on Wetlands of International Importance helps promote the wise and sustainable use of wetland resources. This Convention came into force for Ireland in March 1985 and lists wetlands of good quality which are characteristic of their region. In Ireland all RAMSAR sites (47 No.) are legally protected as Special Areas of Conservation (SACs) and / or Special Protection Areas (SPAs) and / or National Heritage Areas (NHAs) and may be managed under Conservation Management Plans (see Section 10.2.2.2).

This EU and national protection of RAMSAR sites provides Ireland with appropriate tools for the assessment and management of these sites.

#### **10.2.2.2 Governing Legislation – European**

The following outlines the relevant EU Directives required to be implemented under the Water Framework Directive, as well as those implemented since the WFD as well as pending directives. For each directive an assessment is made of the relevance to morphology and where it may be possible to introduce additional measures.

#### **Current European Directives**

##### **The Strategic Environmental Assessment (SEA) Directive (2001/42/EC)**

The SEA Directive ensures that environmental consequences of certain plans and programmes are identified and assessed during their preparation and before their adoption. SEA also ensures that the public and other relevant bodies have an opportunity to participate in the planning process (in accordance with the Public Participation Directive (2003/35/EC)), including neighbour Member States, and their own public, in the case of likely trans-boundary significant effects. The SEA Directive also

includes requirements for environmental reporting, broad-scale assessment of cumulative effects, and requirements of monitoring and appropriate assessment.

The River Basin Management Plans, including proposed PoMs, fall under the SEA Directive, and an assessment of the Proposed Plans and Programmes (PPP) is being undertaken within Ireland. The screening and scoping stages of the SEA for the RBMPs were complete at the time of writing of this report, and suggested objectives have been selected.

The SEA process allows for the cumulative assessment of potential impacts; however, at present it is considered that there is a gap in the existing national legislation (and guidance) for the appropriate assessment of cumulative issues in Ireland.

### **SEA and Marine Morphology**

SEAs are required to assess the significant environmental impacts and interactions of a PPP. The WFD ensures that morphology is considered in the RBMPs, and the SEA Directive ensures that the PPP of the RBMPs are assessed; therefore it is considered that morphology will be adequately considered at this high level. However, this may be restricted due to a lack of awareness and a formal method of assessment for morphology.

As detailed later in Chapter 11, the Marine Morphology study can provide significant input to the development of a formal morphological assessment measure. With regard to awareness of morphological related issues, the WFD requirements for public participation and the involvement of this study in public meetings and sector specific workshops, are considered to have adequately promoted morphology in the relevant sectors. However, as noted previously, the structure and function of governing bodies responsible for Ireland's TraC waters is key to the success of such a strategic assessment.

The results of this study will inform the RBMPs which can then potentially be utilised at this level to assist decision making.

In general terms, the adoption of the findings of the study, including recommendations for monitoring and further development of assessment tools, should significantly contribute to the cumulative and strategic assessment of proposed plans to help ensure that the morphological capacity limit of water bodies can be assessed, monitored and managed.

### **Environmental Impact Assessment Directive (85/337/EEC as amended by 97/11/EC and 2003/35/EC)**

The EIA Directive of the effects of projects on the environment is incorporated into Irish law by the 1989 EIA Regulations. The Directive specifies which projects require an Environmental Impact Statement (EIS) in Annexes I and II of the Directive. Mandatory thresholds are provided for Annex I projects only. However, in transposing Annex II Ireland specified thresholds for these projects within the regulations.

The EIA procedure should ensure that environmental consequences of projects are identified and assessed before authorisation is given.

Many large scale coastal developments require an EIS to be prepared, providing an opportunity for morphological impact to be considered within this framework. For those developments which fall below the specified thresholds, Irish planning legislation provides for the consideration of significant environmental effects and potential direction for the preparation of an EIS (triggered by sites of conservation sensitivity and / or planning appeals).

The requirements for the content of an EIS are outlined in the legislation and in 2002 the EPA published guidance on the information to be contained in an EIS. Also, in 2003, DEHLG published guidance on EIA for consent authorities regarding sub-threshold developments.

### **EIA and Marine Morphology**

As with the SEA, the EIS is required to consider any significant environmental effects of proposed developments and activities. To ensure compliance with the WFD, this should now include an assessment of morphology. At present morphology is not specifically

required to be examined within the EIA framework, although a review of Irish EISs (Appendix 3-2 and Section 3.2.1.6 of Chapter 3) has confirmed that morphological conditions are considered in many shoreline developments where an impact is expected. However, assessment can range from desk-based reviews to extensive estuarine or coastal modelling, and is dependant on the issues identified by the scoping stage and / or consultation.

Recommendations for new basic and supplementary measures associated with the existing EIA process are detailed in Chapter 11. The new basic measures consist of additions to the existing EIA regulations to help trigger the consideration of morphology where relevant for sub-threshold development (refer to Section 11.2.2). Recommendations for supplementary measures are made by outlining how the deliverables of the Marine Morphology study can be used to enhance the EIA process in Ireland, specifically at the screening, scoping and consultation stages. Section 11.3 provides a specific example of how the assessment of morphology can be improved within the existing regulatory mechanisms to facilitate compliance with the WFD.

### **The Birds & Habitats Directives (79/409/EEC and 92/43/EEC)**

The Birds and Habitats Directives require Member States to provide for the preservation, protection and improvement of the quality of important, rare, and threatened natural habitats and specific species of plants, birds and animals, as a contribution to the general objective of sustainable development. In Ireland existing measures include consideration of the protected sites in local and regional land use plans (e.g. county development plans), special assessments of the impacts of certain activities on the conservation status of designated habitat types and species within the site (via the EIA process.)

The objective of the Habitats Directive is to conserve natural habitats and wild fauna and flora in the EU. To attain this, the directive requires the establishment of a network of SACs. The Birds Directive requires the protection of all wild birds and their habitats, and to realise this, the directive requires SPAs to be designated for wetlands which attract large numbers of migratory birds as well as the listed bird species. These sites of Community importance are known collectively as the Natura 2000 network.

The Habitats Directive was transposed into Irish law through the European Communities (Natural Habitats) Regulations 1997. The Wildlife Act 1976 is the main statute governing the protection of wildlife in Ireland and was amended in 2000 to take account of European law, particularly the Habitats and Birds Directives. The Wildlife (Amendment) Act 2000 also makes legal provision for the designation and protection of a national network of NHAs.

Once a site has been published as a proposed SAC or SPA, the Irish Habitats Regulations require that it be protected. The Habitats Regulations require the Minister for the Environment, Heritage and Local Government to undertake the appropriate steps to avoid deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated.

The Natura 2000 sites are required to achieve and maintain 'Favourable Conservation Status' (FCS) and measures must be designed to maintain or restore these habitats and species of Community interest. However, no timescale for these measures is specified.

DEHLG have recently (2008) reported on the status of EU protected habitats and species in Ireland following an assessment of FCS. On assessing the habitats listed in Annex I of the Habitats Directive, the conservation status of a natural habitat was taken as favourable when:

- its natural range and the areas it covers within that range are stable or increasing; and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- the conservation status of its typical species is favourable.

The NPWS aim to draw up conservation management plans for all areas designated for nature conservation which include descriptive information about a site and a management framework which outlines objectives and strategies of conservation within the area. Maps are produced to accompany the text including indicative habitat maps. Work is currently concentrating on compiling plans for SACs including updating and re-formatting old draft conservation plans, as well as writing new plans.

### **Habitats and Birds Directives and Marine Morphology**

The WFD requires that Member States achieve compliance with any standards and objectives of Natura 2000 sites containing protected water dependant habitats and species by 2015 at the latest. As noted in section 10.1, DEHLG have advised that the failure of a water body to achieve the water related objectives of a protected area associated with a surface water body will result in the surface water body being classified as less than good regardless of whether other objectives are met.

Specific morphological objectives are not outlined by these directives or associated national legislation, and it is considered difficult to relate the aspects of FCS, as outlined above, directly with morphological attributes.

The ongoing development of conservation management plans for SACs and SPAs is considered fundamental to the future consideration of morphology as an important ecological quality element of coastal habitat such as saltmarshes, dune systems etc. Within the existing template of these plans, a section is dedicated to a site's 'physical characteristics'. This provides a suitable opportunity for specific monitoring and reporting of any morphological conditions supporting the existing conservation status.

### **The Floods Directive (2007/60/EC)**

The Floods Directive aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive requires Member States to first carry out a Preliminary Flood Risk Assessment by 2011 and to identify the river basins and associated coastal areas at risk of flooding. For such zones Member States are required to draw up Flood Risk Maps by 2013 and establish Flood Risk Management Plans to focus on prevention, protection and preparedness by 2015. This is designed to be integrated with the second RBMP in 2015. The directive applies to inland waters as well as all coastal waters across the whole territory of the EU and to all forms of flooding.

Under the Floods Directive and Ireland's National Flood Policy, a series of studies and plans are being prepared in response to concerns over sea level rise and climate change. As part of these programmes, Catchment Flood Risk Assessment and Mapping



Studies (CFRAMS) are being carried out. This will assist in developing a strategic information base necessary for making informed decisions in relation to managing flood risk and identifying viable measures and options for managing flood risk across a catchment, including associated coastal and estuarine areas.

Once completed, strategic Catchment Flood Risk Management Plans will be prepared (together with associated Strategic Environmental Assessment) and set out the measures and policies that should be pursued by local authorities and OPW to achieve the most cost-effective and sustainable management of flood risk within the CFRAMS areas.

### **The Floods Directive and Marine Morphology**

Measures designed to alleviate flooding or provide flood protection, may have a significant impact on morphology and affect any measures proposed to assist the restoration or maintenance of water body status. Article 4 (7) of the WFD sets out the conditions under which a Member State will not be in breach of the directive when, *inter alia*, failure to achieve GES/GEP or prevent the deterioration in the status of a water body is the result of “*new modifications to the physical characteristics of a water body*” or when failure to prevent deterioration between high and good status is the result of “*new sustainable human development activities*”. The potential relationship between proposed measures and conditions of such a directive are detailed in Section 11.1.2 of the following chapter.

It is considered that any flood risk management plans will be subject to SEA and EIA evaluation of the potential significant environmental and cumulative effects, and therefore adequately consider the potential for ecological deterioration associated with alterations to morphology.

Integrated flood planning may be required in the future due to the complexity of the issues involved. In addition to the CFRAMS areas, the possible cumulative interactions of neighbouring programmes on coastal processes should also be considered.

## Pending European Directives

### **The Marine Strategy Directive (draft)**

The consolidated text of this directive has been agreed by the EU Parliament and Council. The Marine Strategy Directive aims to achieve good environmental status of the EU's marine waters by 2021 and to protect the resource base upon which marine-related economic and social activities depend. It will establish European Marine 'Regions' on the basis of geographical and environmental criteria which will be assessed and managed by Marine Strategies.

The Marine Strategies, similarly to the Water Framework Directive's RBMPs, will contain a detailed assessment of the state of the environment, a definition of "good environmental status" at regional level, and the establishment of clear environmental targets and monitoring programmes.

### **The MSD and Marine Morphology**

As with the WFD, each Member State will draw up a programme of cost-effective measures, which will include the consideration of morphology.

In Ireland there is currently little information available on the larger sedimentary systems around the coast and sediment cells and pathways and the Sea Change Programme (MI, 2006) has defined the need for resources to fill these data gaps.

It is likely that coastal and marine process assessment (including monitoring) will be included as a recommendation or measure under the Marine Strategy Directive. As with TraC water bodies defined for the WFD, there is a significant gap in the monitoring and assessment of the relationship between morphology and ecology.

The Marine Strategy Directive is consistent with the requirements of the WFD. It is envisaged that this directive will help complement the achievement of the WFD objectives by increasing the awareness of coastal pressures, as well as outlining requirements for integrated strategic marine management.

## **The Environmental Liability Directive (ELD) (2004/35/EC)**

Ireland is currently transposing the Environmental Liability Directive (2004/35/EC). The Directive is directed at preventing environmental damage to water resources, soil, fauna, flora and natural habitats, in accordance with the 'polluter pays' principle. The ELD introduces a liability scheme which aims to:

- hold operators whose activities have caused environmental damage financially liable for remedying this damage; and
- hold those whose activities have caused an imminent threat of environmental damage liable for taking preventive actions.

Under the ELD 'environmental damage' includes damage to protected species and natural habitats, water damage and land damage. Of potential relevance to morphology 'environmental damage' can include damage:

- which has significant adverse effects on reaching or maintaining favourable conservation status of species and natural habitats protected under EU legislation;
- that significantly adversely affects the ecological status and/or ecological potential of waters falling within the scope of the Water Framework Directive.

The ELD also includes an optional provision for the extension of the protection of habitats and species beyond those listed in the Birds and Habitats Directives (Article 2(3)(c)).

### **The ELD and Marine Morphology**

This directive will help support the protection and restoration of morphological conditions by allowing specific detrimental effects to be appraised. Where remediation is required for 'environmental damage', the developer of a physical modification, and / or the regulator which approved such a development, could be held liable for the costs of rectifying, remediating or mitigating the situation. Unlike impact assessments, any actions (intervention measures) required are determined retrospectively, after the incident or development has occurred, and funded based on the polluter pays principle.

The appraisal of detrimental effects relating to morphology, and allocation of responsibility for this 'environmental damage' will require extensive evidence of the

relationship between morphology and ecology. This again emphasises the importance of establishing a good baseline of morphological conditions for Irish TraC water bodies.

The risk assessment carried out by the Marine Morphology study can assist in this appraisal. However, further research and development including the monitoring and formal classification of TraC waters would be required to support liability decisions.

#### **10.2.2.3 Governing Legislation – National, Regional and Local Levels**

The following outlines relevant Irish national legislation. For each piece of legislation an assessment is made of the relevance to morphology regulation and where it may be possible to introduce additional measures.

##### **The Foreshore Act**

The Foreshore Act 1933 defines the foreshore as *"the bed and shore, below the line of high water of ordinary or medium tides, of the sea and of every tidal river and tidal estuary and of every channel, creek and bay of the sea or of any such river or estuary"*.

Within the Foreshore Act amendments, there have been changes to assist the protection of morphology. The Foreshore Act, 1992, amends the 1933 Act to increase penalties for breaches of the Act and gives the Minister (to be reassigned under current departmental changes) powers to ban sand or stone removal from any beach or classes of beach; to ban any specified method of sand removal; to control the quantities or times of any removal or disturbance; and to ban any activity or vehicle which disturbs the shore, e.g. by laying it open to wind or tidal erosion or by damaging indigenous plant or animal life or by taking from its amenity value. Assessments are made under the advice of the Marine Licence Vetting Committee (MLVC), a multi-disciplinary committee composed of representatives from DAFF, DEHLG, Department of Transport (DoT), NPWS, the Marine Institute, BIM, the Marine Survey Office, and the Central Fisheries Board. The committee has expertise in fisheries, biology, chemistry, oceanography, navigation and engineering disciplines and assesses in detail all permit applications prior to making a recommendation to the Minister.

The principal legislation currently of relevance to coastal protection works consists of the Foreshore Acts 1933-92, the Planning and Development Acts 2000 - 2006, and Harbours Acts 1946- 96.

### **The Foreshore Act and Marine Morphology**

Many foreshore developments that require a foreshore licence/lease under the Foreshore Acts will impact marine morphology. The scale of the proposal will determine the requirement for an EIS. However, there is a requirement for a detailed support document for all foreshore applications that includes requirements for the evaluation for potential interactions and identification of any significant environmental affects.

Governmental guidance for foreshore (and dumping at sea) applications strongly recommends applicants to consult with the Department (DAFF at the time of writing) prior to finalising their application. Therefore, although there is currently no specific requirement for the consideration of morphology in this guidance, the obligation for appropriate consultation provides an opportunity to ensure the potential significance of marine morphology is raised.

Chapter 11 recommends more specific [supplementary] measures to enhance and support the existing regulatory framework for future physical modifications, including the appropriate use of the deliverables of this study and the TraC-MImAS tool.

### **The Dumping at Sea Acts 1996 – 2006\***

*\* Collective citation as per section 1(7) of Sea-Fisheries and Maritime Jurisdiction Act 2006 (No.8)*

In 2006, the former DCMNR arranged with the Attorney General's Office for a formal Reinstatement of the following acts:

- The Dumping at Sea Act 1996 (No. 14 of 1996)
- The Dumping at Sea (Amendment) Act 2004 (No.35 of 2004)
- Section 103 of the Sea-Fisheries and Maritime Jurisdiction Act 2006 (No. 8 of 2006)

Currently in draft form, this consolidation of acts aims to assist those applying for Dumping at Sea permits and their consultants.

Dumping at sea is regulated under the Dumping at Sea Act, 1996. This Act implements the OSPAR Convention which was adopted in 1992 and entered into force in 1998 and

which provides for strict controls on dumping of material in Irish waters. All permit applications for the dumping of dredge spoil at sea are processed by DAFF and the Coastal Zone Administration Division. The relevant Minister (currently DAFF) may decide to grant or refuse to grant a dumping at sea permit. This decision is informed by the recommendations of the Marine Licence Vetting Committee (DAFF, Guidelines for Dumping at Sea, 1999) and following consultation with the other bodies which the Minister considers appropriate.

The Marine Institute on behalf of DAFF has published comprehensive guidelines for the assessment of dredge materials for disposal in Irish waters (Cronin et al, 2006). Although this concentrates for the most part on contamination issues, the importance of the assessment of the physical characteristics of the materials is outlined.

The assessment of applications to dump at sea is carried out under the criteria laid down under the OSPAR Convention as set out in the First Schedule to the Dumping at Sea Act, 1996. Briefly, these criteria are:

- The availability, or otherwise, of suitable land-based alternative disposal options or there being other possible beneficial uses of the material (e.g. land reclamation, beach nourishment, etc.);
- The characteristics and composition of the material to be dumped;
- The characteristics of the dumping site and method of disposal;
- Potential interference with other legitimate uses of the area including fisheries, aquaculture, areas of special scientific importance, areas of wildlife importance, recreation, navigation and shipping both from the dumping and dredging aspects of the proposed project;
- Potential impact on the marine ecosystem.

Under the existing assessment process for dumping at sea, the dredge area analysis considers the physical as well as chemical and biological characteristics of the material to be removed.

The dump site is then assessed for potential impact and interaction. Applications for permits are required to provide information on the location of the dump site in relation to the vicinity of such sites as:

- Spawning, recruitment and nursery areas.
- Sport and commercial fishing areas.
- Aquaculture areas.
- Amenity areas.
- Exploitable resources, e.g. aggregate.
- Areas of special scientific importance.
- Areas of wildlife importance / preservation.
- Shipping lanes.
- Shipwrecks.
- Sites of archaeological interest.
- Engineering uses of the sea such as undersea cables, pipelines, etc.

The licence applicant must provide data on the hydrological characteristics of the dump site as well as data on benthic fauna. In some cases (usually for proposed new dump sites) the applicant will also need to carry out field and model studies to obtain these data for the evaluation of the physical characteristics of the dumpsite, including:

- Water depths (maximum, minimum, mean).
- Water stratification in various seasons and weather conditions.
- Tidal period, orientation of tidal ellipse, velocities of major and minor axis.
- Mean surface drift (net): direction and velocity.
- Mean bottom drift (net): direction and velocity.
- Wind and wave characteristics.

### **The Dumping at Sea Acts and Marine Morphology**

The Dumping at Sea Act contributes to the control of both dumping at sea and dredging (maintenance and capital) activities.

The control of dumping at sea includes requirements to report on the hydro-morphological characteristics of the dump site, providing not only a direct assessment of morphological impact, but a source of potentially important baseline data.

The MLVC assess both dumping at sea permits and foreshore licence applications, which should allow the existing mechanisms to be used for a cross sectoral cumulative appraisal of proposed developments affecting marine morphology.

Based on the summary above it is considered that morphology is appropriately addressed by the Dumping at Sea Acts and associated guidance documents.

### **Planning and Development Acts 2000 - 2006**

The Planning and Development Act requires local authorities to prepare a development plan for their area. This consists of a written statement and a plan indicating the development objectives for the area in question. It also acts as a framework within which planning applications are made and planning permissions granted or refused, i.e. a proposed development must be in accordance with the purpose for which the site is zoned in the relevant development plan. Under the SEA Directive, these plans (County Development Plans and Local Area Plans) must be associated with a SEA. This enables the assessment of sustainable development, and potential cumulative impacts. It also provides a framework for public consultation.

The Planning and Development (Strategic Infrastructure) Act, 2006 amended the Planning and Development Act, 2000 to allow for a series of changes to the planning and judicial procedures associated with large infrastructure projects, i.e. for developments specified by this Act the applicant shall apply directly to An Bord Pleanála for planning permission rather than to the Local Planning Authority in which the development is proposed

Although the Strategic Infrastructure Bill allows the 'fast-tracking' of developments which are seen to have significant public interest, it does not preclude requirements for EIAs or SEAs.

Subject to the scale of a proposed project, an application for planning should be accompanied by an EIS.

### **Planning and Marine Morphology**

Potential measures for the further consideration of morphology in the planning system are addressed by the EIA and SEA summaries above, which are detailed specifically in Sections 11.1.1, and 11.2 of Chapter 11).



## National Spatial Strategy and National Development Plan

Regional guidelines and development plans in Ireland (Local and County Development Plans) must take into account the National Spatial Strategy. The National Spatial Strategy is a national planning framework for Ireland from 2002-2020. The key to the strategy is balanced regional development. It is intended that the Strategy will guide *'future infrastructural, industrial, residential and rural development in Ireland while providing protection for our cultural, natural and environmental heritage'*.

The National Strategy also takes account of the European Spatial Development Perspective, agreed in 1999 by the 25 EU member States, and enacted under the National Development Plan.

## Integrated Coastal Zone Management

Both the National Spatial Strategy and the National Development Plan encompass many principles of Integrated Coastal Zone Management (ICZM), but do not include a specific plan for adopting an ICZM process. The NDP (2000-2006 and 2007-2013) outlines the principles of ICZM and its benefit in managing coastal erosion and deposition, sea level change, coastal land use and development, and maritime industries including fisheries, aquaculture, offshore energy production, tourism and recreation, making reference to the Coastal Zone Management: Draft Policy for Ireland (1997). Under the Marine Institute Sea Change Programme the NDP (2007-2013) has initiated research into the phased introduction of ICZM in Ireland, referencing the River Basin Management Plans as an integral factor.

ICZM is a strategic integrated management system, using the existing regulatory and non-regulatory bodies and structures. ICZM has been defined as a dynamic, continuous and iterative process designed to promote sustainable management of coastal zones. ICZM seeks, over the long-term to balance the benefits from economic development and human uses of the coastal zone, the benefits from protecting, preserving and restoring coastal zones, the benefits from minimising loss of human life and property, and the benefits from public access to and enjoyment of the coastal zone; all within the limits set by natural dynamics and carrying capacity (EC, 1999, EC, 2000)

### **ICZM and the WFD**

River Basin Management Planning adopts many of the principles of ICZM. However, it is considered that the natural dynamics and coastal processes of Ireland's coastline are not sufficiently understood to allow ICZM to be fully established. There are also sectoral and departmental divides that would require further integration to allow ICZM to be practiced effectively in Ireland.

### **The NSS, NDP and Marine Morphology**

The NSS and NDP highlight the need for coastal infrastructure. The various programmes include development of coastal tourism, sea transport, security of oil and gas supplies, renewable energy and a range of other objectives that will entail coastal development and therefore morphological pressure. However, the programmes also identify the need for ICZM, cross sectoral management based on the management of areas by catchment (RBMP areas) and physical processes, and outlines needs for research and implementation programmes. ICZM is an important measure highlighted in many European and National strategies and legislation. It provides a significant management measure for marine morphology integrating the existing mechanisms to provide effective management.

### **The National & Local Biodiversity Action Plans**

In response to the Article 6 of the Biodiversity Convention Ireland has developed a National Biodiversity Action Plan (2002). This 91 point approach is designed to assist the preservation of biodiversity on a national basis. Plans are currently being developed for specific areas of biodiversity such as the 'National Plant Biodiversity Strategy'. The Plan recognises that the WFD will compliment some of its recommendations.

There are limited Local Biodiversity Action Plans in Ireland. Where developed, these Plans have been generated predominantly to support and inform County Development Plans; primarily as a conservation plan to accompany the environmental report for the plan. This approach provides guidance at a local authority level on evaluation of the development plan and future developments.

### **The National Biodiversity Action Plan and Marine Morphology**

The recommendations of the National Biodiversity Action Plan are consistent with the objectives of the WFD and should be considered as a supportive measure, particularly as much of the Convention is aimed at ecological awareness and education.

Where the biodiversity targets of Local Plans correspond to morphologically sensitive habitats and species these plans may assist in raising awareness, however, as they are applied inconsistently across Ireland at the present time it is considered that the NPWS Conservation Management Plans may provide a better approach for morphological assessment of habitats.

### **Local Authorities (Bye-Laws)**

In addition to the powers described above, national Planning and Development Regulations allow local authorities to rule on local bye-laws to control activities in coastal areas. Several local authorities currently have Beach Bye Laws, enacted under Part VII of the Local Government Act, 1994 to prevent activities such as off road vehicles, power boats or jet-ski operations on certain beaches or areas. These also extend to a wide variety of activities such as vehicle access and recreational activity areas. The driver for many of these is safety or nuisance, but there is the facility to use these laws to protect morphology (especially coastal areas of high ecological value such as dune systems or saltmarshes) from activities affecting morphology.

#### **10.2.2.4 Guidance**

In addition to Governmental guidance, many sectors across Europe produce detailed guidance specific to their sector's applications and developments. The Good Practice Guide provided by Chapter 7 of this report summarises much of this guidance where relevant to morphology, and helps direct the reader to the most appropriate guidance in considering the pressures identified.

Under the Environmental Protection Agency Act, 1992, the EPA has departmental responsibility for the production of guidance for environmental legislation. Much of this guidance has been produced and between the government departments there are a number of guidelines covering the requirements, assessment and processes for EIA,

SEA licensing, permission permit systems, sectoral guidance for specific industries such as the construction industry, and specific mitigation that can be carried out on types of development.

Much of this guidance has been reviewed over the course of this study, and examples are highlighted in Chapter 7. In general, there has been little mention of morphology as an issue of concern. This is presumably due to a lack of awareness of the implications to ecology of morphological change. Unlike other European countries where the coastal processes are well understood and managed (enabling more specific guidance, evaluation, and prioritisation of protection of resources) Ireland's coast is much less understood than other areas and often information and data is deficient (see Chapter 3 – Data Review and Chapter 4 – Review of Existing Monitoring).

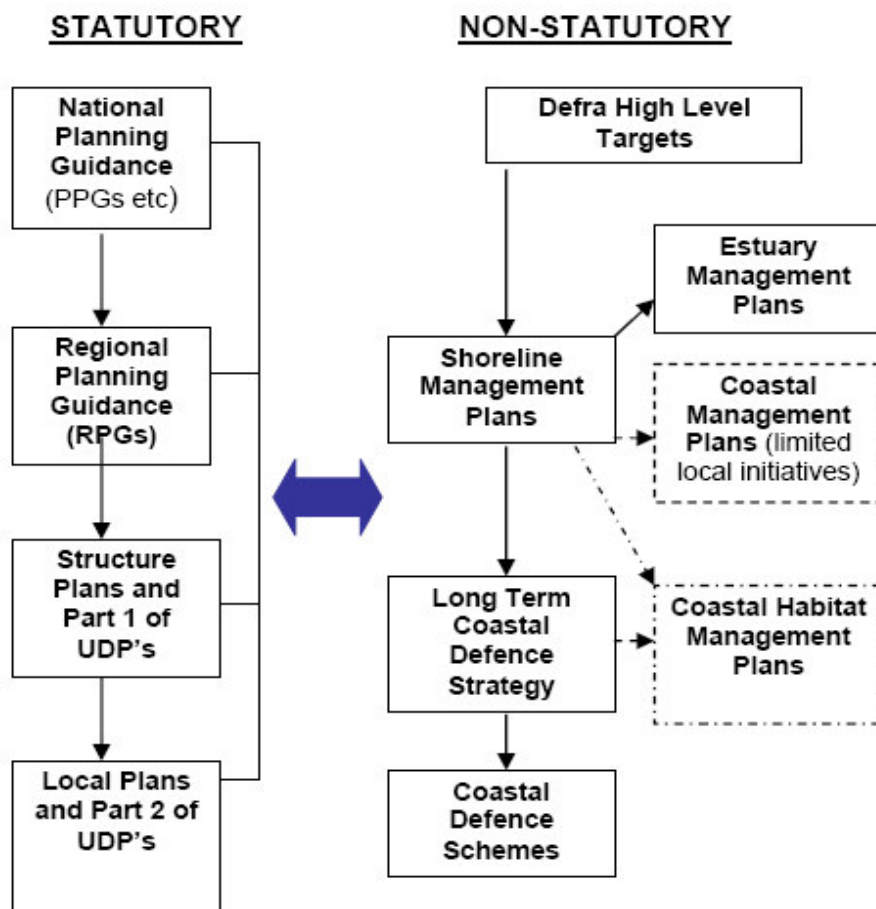
The National Roads Authority's 'Environmental Assessment and Construction Guidelines' is a good example of comprehensive sectoral guidance including detailed appraisal of the EIA process in Ireland. The structure and content of these guidelines provides the reader with all the information required to appropriately consider the potential environmental issues in relation to existing legislation as well as consider the available and appropriate measures to minimise environmental impact. Such guidelines, adapted for coastal development, would significantly enhance the success and efficiency of the existing mechanisms governing Ireland's TraC water by providing developers, consultees and regulators with the appropriate tools for assessment.

Significantly, the EC and other European countries have provided guidance on coastal zone management, its principles and implementation. In much the same way as the River Basin Management Plans are intended to provide integrated management over an area determined by physical factors rather than administrative boundaries, ICZM is designed to do the same on the basis of natural coastal process delineators. Within the UK for example, successful coastal assessment programmes have been based on coastal cells, or areas derived from the coastal processes.

The drivers for this process have been the high level of coastal development and modification. Whilst Ireland does not have the same levels of coastal development as its EU neighbours, the process of ICZM has significant value in integrated management,

which is a key component for marine morphology management in Ireland. Within the UK these are then managed under a framework to allow integrated management with regard for strategic and coastal processes (affecting morphology).

An example of the integration of management plans for the UK is shown below in Figure 10.1, a process for which RBMPs can benefit.



**Figure 10.1: An example of coastal plan integration and guidance from the UK (DEFRA, 2002 ICZM in the UK: A Stocktake)**

### 10.2.3 Conclusions from Legislative Appraisal (Basic Measures)

Ireland has a complex legislative framework covering foreshore areas with crossover of responsibilities and duplication in some areas, and there is potential for developments with possible morphological effects to occur below current thresholds for further assessment.

Ireland has a potential regulatory gap in relation to managing direct morphological pressures consistently across Ireland's TraC waters. This is not unusual across Europe; however departmental responsibility changes have complicated this issue in Ireland. The Foreshore Acts are currently the only significant piece of Irish legislation considering morphological pressures in TraC water bodies. Also there are few mechanisms for strategic overview, especially covering the foreshore and the determination of cumulative affects.

There is a general lack of awareness of morphology as a significant environmental impact within the existing regulatory system, but by raising awareness and supplementing existing guidance, morphology can be highlighted as an important consideration within the current legislative framework.

The implementation of the WFD will ensure morphology is considered as a significant environmental factor within the RBMPs. However, considering the findings outlined above, additional measures are required to ensure marine morphology is adequately addressed within the appropriate areas of development appraisal (see Chapter 11 for recommendations and an example of how this may be achieved).

The current legislation has a strong marine / land divide, and elements of departmental uncertainty compound this problem. The current legislation emphasis is on sectoral implementation of planning, and although there are some common or overarching regulatory structures, they are not utilised for cross sectoral or strategic appraisal.

For marine morphology and other TraC issues to be effectively managed, there is a **real need for clear and transparent mechanisms to implement legislative requirements and ensure enforcement and compliance.**

In the absence of a single marine or water department, the regulatory responsibilities, requirements, and interactions need to be clearly defined and suitable guidance provided, with a common structure from local through to national development appraisal and control.

### 10.3 Recommendations for Basic Measures and Supplementary Measures

The legislation outlined in Section 10.2 above can require / benefit from the application of various actions to assist compliance. Chapter 7 of this report details the Good Practice measures appropriate for the restoration and mitigation of morphological conditions in TraC waters. In addition to these the following measures relating to the enhancement of existing legislative mechanisms are proposed:

- **A detailed review of marine legislation should be undertaken**, identifying gaps and crossover. This should be carried out once departmental responsibilities are confirmed (budgeted and scoped under the Sea Change Programme (NDP2007-2013)). This review was tendered by the DCENR in 2007 but has been deferred until such time as departmental responsibilities can be confirmed. This review will assess the legislative controls relevant to marine management and the development and maintenance of coastal structures (marine morphological pressures). This review also constitutes one of the essential initial stages of ICZM under the European guidelines. Without this information, gaps in the current regulatory structure, and associated guidance, cannot be sufficiently identified for marine morphological pressure regulation to propose effective measures or assess compliance with basic measures. Consideration should also be given to the potential conflict between existing legislation, for example, the requirement under the Harbour Acts for the maintenance of channels could potential conflict with PoMS defined to meet the objectives of the WFD.
- **Consideration of morphology should be included under the interaction evaluation requirements of the SEA, EIA, Foreshore Licensing and Dumping at Sea permitting systems**, by amendment of the existing guidelines by the appropriate responsible department (currently EPA and DAFF).
- **Requirements under the current legislative framework should be expanded to include more emphasis on strategic evaluation and cumulative assessment** (especially with EIA and SEA appraisal). The cumulative impacts should also be considered by the regulatory authority and the Aquaculture and Marine Licence Vetting Committee who evaluate all the licences, and include representatives from all relevant government bodies.

- Certain **permit, licence, or permission activities** currently have detailed guidance on adherence to the existing legislative mechanisms. While the guidance adequately addresses the requirements of the legislation specific reference to morphology is rare. Within these current mechanisms, morphology can be considered as a 'significant environmental factor', or as a 'significant interaction'. **Changes to the guidance for preparing and evaluating these applications to include morphology** will increase awareness and promote its assessment from project to strategic level, helping to ensure preservation of ecological status of TraC water bodies.
  
- It is envisaged that many of the responsibilities for foreshore and marine development will be passed on to **local authorities**; or they will be involved in consultation through the RBMP process and existing legislation. This will enable **morphological evaluation to be undertaken at River Basin District level**. Until such time as further research, co-ordinated by the Marine Institute or DAFF, has been carried out into the phased introduction of Integrated Coastal Zone Management as proposed under the Sea Change Programme (NDP2007-2013), this mechanism could provide much of the structure required for integrated marine management. As coastal processes occur and can be affected across a wide area and across river basin boundaries, this **integrated approach is fundamental to both assessment and management of coastal pressures**.

The above recommendations for measures are generic to TraC waters and primarily involve increasing morphology related assessment within the existing basic measures (mechanisms). On confirmation of the roles and responsibilities of governing bodies, the detailed aspects of these recommendations can be appropriately prioritised by further reviewing the current gaps identified with regard to feasibility and cost effectiveness parameters. Prior to this it is considered that the **specific inclusion of morphology and / or ecological status as a significant environmental factor / interaction in national guidance documents for existing mechanisms** is a cost effective method of increasing the appropriate awareness of these aspects relating to the achievement of WFD objectives.



## 10.4 Prioritisation of TraC Water Bodies for the Application of Appropriate Measures

### 10.4.1 Introduction

As indicated in Section 10.1 above, a programme of measures is required to prevent deterioration in the existing status of waters, and restore water bodies currently at 'less than good' to 'good status' by 2015.

To achieve these objectives, this section aims to outline two methods to assist RBDs in the identification of appropriate PoMs to address morphological conditions of Irish TraC waters:

1. Section 10.5.2: A method is proposed outlining how TraC water bodies identified as potentially at risk of not achieving their required status under the WFD (in the absence of classification) can be prioritised for attention (Figure 10.2).
2. Section 10.5.3: An approach is recommended for the identification of appropriate measures for those water bodies identified (Figure 10.3). This method is based on Figures 7.2 and 7.3 in Chapter 7 which introduced recommendations for the identification of appropriate measures to improve and protect morphological conditions as well as any reporting requirements to support decisions made.

With regard to the both the development and use of these methods, the following aspects have been, and should continue to be, addressed throughout the prioritisation:

- Significant risks associated with these water bodies (identified via further characterisation of pressures and the use of TraC-MImAS)
- Effectiveness of existing measures (identified via Chapter 7, Sections 10.2 – 10.3 above, as well as in Section 11.2.1 of the following chapter)
- Measures to address any gaps in meeting the required objectives (see Chapter 7 regarding physical actions, and Chapter 11 and Sections 10.2 and 10.4 regarding enhancement to existing mechanisms)
- Technical feasibility and cost associated with achievement of objectives by 2015.

As noted previously, hydromorphological quality elements must be taken into account when assigning water bodies to the HES class. For other status classes, the hydromorphological elements are required to have '*conditions consistent with the*

*achievement of the values specified for the biological quality elements'* (WFD, Annex V). Only when the required biological and physico-chemical conditions are met is hydromorphology addressed. Prior to the formal classification of TraC water bodies, it is assumed for the purpose of this chapter that PoMs summarised in the first RBMP (2009 – 2015) will focus on those water bodies characterised as 'at risk' from 'other factors' such as pollution or marine direct impacts (nutrients and hazardous substances) in order to achieve at least good ecological status. Morphology will then only be required for the achievement of high ecological status. The hierarchy relating to the achievement of GES and HES is illustrated in Figure 1.1 of Chapter 1.

On completion of all national PoMS studies and formal classification, each RBD should be adequately informed to determine the cumulative impacts of identified pressures on the status of TraC water bodies. PoMS can then be focused on those water bodies of highest priority subject to technical feasibility and cost. Comprehensive prioritisation of specific morphological measures is not a feasible deliverable of this study given the information available at the time of writing. However, the recommendation of a method for prioritising TraC water bodies as well as a process for identifying appropriate generic measures to achieve the objectives of these water bodies, will provide RBDs will sufficient information for the consideration of morphology in the design the PoMs.

### Order of Priority

Following consultation with the Marine Morphology Steering Group and a review of the requirements of the WFD, prioritisation of TraC water bodies for the application of morphology measures were considered under the following themes in order of priority:

1. Restore high morphology status in any TraC water bodies where 'protected area' favourable conditions\* require high status (Article 4(i)c of the WFD and DEHLG request);
2. Preserve high status in existing high status TraC water bodies by controlling new development (Article 4(i)a of the WFD);
3. Preserve good status in existing good status TraC water bodies by controlling new development (Article 4(i)a of the WFD);
4. Restore good morphology status in any TraC water bodies that would otherwise be of good status (this implies that all other water quality elements are at least good status) (Article 4(i)a of the WFD).

\* the purpose of this study, and this prioritisation 'favourable status' is considered as Favourable Conservation Status of Natura 2000 sites.

### Sources of Information

Information to further assist the prioritisation process will be made available to the RBDs on completion of all PoMS studies, many of which were undertaken at a national level, also formal classification and monitoring results will be provided by the EPA.

With regard to morphology, the information required to apply the methods recommended here is summarised below under the following themes:

- Status class
- Pressures
- Protected Areas
- Measures
- Technical feasibility
- Cost

Where this information is currently unavailable, an alternative source is identified, and where appropriate, the responsible body for providing this information is noted.

The information available at the time of writing was used to apply the recommended method so as to demonstrate indicative results of this prioritisation (Tables 10.1 and 10.2).

Before definitive PoMs relating to morphological alterations can be concluded, additional monitoring and appraisal of the pressures, as outlined in Chapters 9 and 3 respectively, should be undertaken. It is recommended that on receipt of such information the prioritisation methods are validated and re-run where required.

### Status Class

The EPA will provisionally classify TraC water bodies in the RBMPs. Then, following completion of the inter-calibration exercise and validation of new classification tools, the EPA will assign final status classes by March 2011 (DEHLG, 2007). Prior to the classification of TraC water bodies, the results of the Further Characterisation process,

as outlined in Chapter 6 of this report, can be used to help prioritise waters for the design and application of PoMs regarding morphology. These results are subject to the assumptions outlined in Section 6.2.1 and 6.3.

### Pressures

The morphology pressures identified throughout this study are documented in GIS layers. The extent of these pressures once assessed within TraC-MImAS is expressed as risk to status class. In the absence of formal classification tools and reference conditions / thresholds for morphology the TraC-MImAS morphological condition limits (refer to Section 5.2.5) can be used as indicative of status class targets. The gap between the estimated risk status and these targets can be then gauged, i.e. is an objective of preservation or restoration of status required.

Prior to the completion of national PoMS studies, it was necessary to refer to the initial risk assessment results for the risk associated with 'other factors' ['at risk' (1a) and 'probably at risk' (1b)]. An appraisal of the risk associated with 'other factors' will be required prior to the implementation of measures.

As part of the further characterisation process, Water Body Summary Sheets were generated for TraC water bodies characterised as being at risk of failing to achieve GES. In addition to detailing the existing pressures on each water body, the physical and ecological characteristics including the presence of any protected areas were summarised (refer to Section 6.3.4 and Appendix 6-4). These reports will prove useful to the site specific assessment of pressures.

The recommendations of the Marine Morphology data review (Chapter 3, Section 3.5) should be considered on review of existing pressures identified for TraC water bodies.

### Protected Areas

The DEHLG have specifically requested (as notified via the Marine Morphology Steering Group) that protected areas are given precedence for prioritisation. The Natura 2000 network designated via the Birds and Habitats Directives is recorded in Ireland's WFD Register of Protected Areas (RPA) as 'PA5' and 'PA6' respectively.

Legislation currently governing all other RPAs is not considered to be of particular relevance to morphology. For example, RPAs associated with drinking water will not be subject to more stringent objectives than the WFD with regard to TraC morphology. Legislation of relevance to both shellfish and salmonid RPAs outlines restrictions to suspended solids. However, water pollution is considered the main pressure regulated here. It was therefore considered appropriate that, in reviewing the proximity of TraC water bodies to protected areas and the potential for more stringent objectives required of morphological conditions, that Natura 2000 sites were of most relevance. Any TraC water bodies designated as SACs or SPAs which requiring a conservation status equivalent of high ecological status should be subject to measures to achieve this status as a first priority.

At the time of writing, Ireland's WFD Register of Protected Areas had yet to be finalised. In relation to this register, the Western River Basin District (WRBD), as part of the High Status PoMs study, is currently preparing a database of water dependant habitats and species (SACs and SPAs), and following approval from the NPWS, a database and baseline data will be provided to the RBDs for consideration in PoMS. For sites identified as not achieving Favourable Conservation Status, the WRBD will report on set targets and timeframes for restoration and develop guidance on a suite of measures for the different habitats. The NPWS are to develop a webserver-based register of designated sites to which local authorities and other State agencies will have access (WRBD High Status presentation, National PoMS Co-ordination Meeting, April 2008). Once approved, those water bodies identified by this study will be required to maintain / achieve High Ecological Status by 2015.

In the absence of this information, and for the purpose of providing an example of the recommended prioritisation method, all water bodies within the vicinity of an SAC or SPA which have been identified as likely to achieve GES were evaluated as requiring one of two objectives:

- Improvement of status to HES for Favourable Conservation Status; or
- Preserve good ecological status.

## Measures

Existing and recommended mechanisms for governing pressures within TraC water bodies are identified in Sections 10.2 and 10.4 above and outlined in detail in Chapter 11 with regard to future regulation.

As stated previously, aspects of the management of marine affairs within government departments in Ireland is currently undergoing change. Therefore, it is important to note that the legislation information summarised for consideration in this chapter (and Chapter 11) has been updated to be as accurate as possible at the time of writing, but, it is anticipated that changes will occur over the course of the first River Basin Management cycle.

A detailed review of marine legislation as recommended by the National Development Plan (NDP) Sea Change Programme (NDP2007-2013) is a potential contributor to this change if completed in the near future. This review was tendered by the DCENR in 2007 but has been deferred until such time as departmental responsibilities can be confirmed. If undertaken, this review will assess the legislative controls relevant to marine management and the development, and maintenance of morphological pressures, and propose resolutions for the gaps identified in Sections 10.2 and 10.3 above.

The identification of specific pressure types has helped define appropriate measures (physical actions) for the restoration and mitigation of morphological alterations (as outlined in the Good Practice Guide in Chapter 7). In addition to associating suitable measures to each pressure type, the Good Practice Guide directs the user to sources of information which can aid decisions for both the maintenance and restoration of status.

Existing voluntary programmes, such as local environment schemes, may also be active in a water body, contributing to its quality. Such information should be obtained on a local, site-specific basis.

## Technical Feasibility

Technical challenges of implementing various measures on the ground were identified where possible through the review of case studies and reported in the Good Practice Guide in Chapter 7.

As recommended in Chapter 7, in reviewing the feasibility of measures, it is important to emphasise that measures, which have proven successful at one location, may not be directly applicable in other environments. Also, the implementation of morphology measures, particularly those required for the restoration of status, can potentially result in adverse impacts on other quality elements. Therefore, in deciding on the most appropriate measures, site specific investigations and designs should be considered in the context of a wider strategy, i.e. linked to sustainable developmental appraisal, through appropriate assessment in existing legislative guidance under EIA and SEA, as well as the RBMPs.

### Costs

The cost effectiveness of implementing morphological pressures is addressed in Chapter 7. In summary, those measures achievable at minimum cost typically include the development or application of codes of practice and better enforcement of (often existing) local regulation. Measures prohibiting certain activities or work methods, such as dredging, may be shown to be disproportionately costly particularly when considered in the context of the wider strategy.

Also those costs associated with the maintenance of some measures should also be considered. This may be particularly relevant to those measures required to maintain conservation site.

Where possible, the costs of implementing protective, restorative and enhancement measures have been identified in the Good Practice Guide in Chapter 7. New basic measures or legislative supplementary measures, if required, will generally be subject to Regulatory Impact Assessment (RIA).

Costs can assist in the prioritisation of measures. However, they are best used on a site specific basis where the measures can be accurately assessed. Excessive costs are easier to identify for mitigation where they can be assessed against the total cost of the development.

The Good Practice Review can assist RBDs in reviewing potential costs. However, detailed field assessments will be fundamental to the assessment of each measure proposed.

#### 10.4.2 Prioritisation of TraC Water Bodies

Figure 10.2 below illustrates how Irish TraC water bodies can be prioritised for the consideration of morphology measures. As noted above, additional information sourced from the completion of the PoMS studies, monitoring programmes and classification will supplement the application of this method, and should be considered by each RBD during the design of the PoMs.

In the absence of the above, the best available information at the time of writing was used to apply this method to the TraC water bodies in order to predict the potential default objectives for each of the water bodies. Those steps illustrated in *italics* in Figure 10.2 indicate where alternative information was used in the absence of a more appropriate source.

Tables 10.1 and 10.2 outline the results of this method of prioritisation by identifying the likely objectives for each water body as per the themes below:

1. Restore high morphology status in any TraC water bodies where 'protected area' favourable conditions require high status.
2. Preserve high status in existing high status TraC water bodies by controlling new development.
3. Preserve good status in existing good status TraC water bodies by controlling new development.
4. Restore good morphology status in any TraC water bodies that would otherwise be of good status (this implies that all other water quality elements are at least good status).

Appendix 10-1 tabulates these results for each RBD.



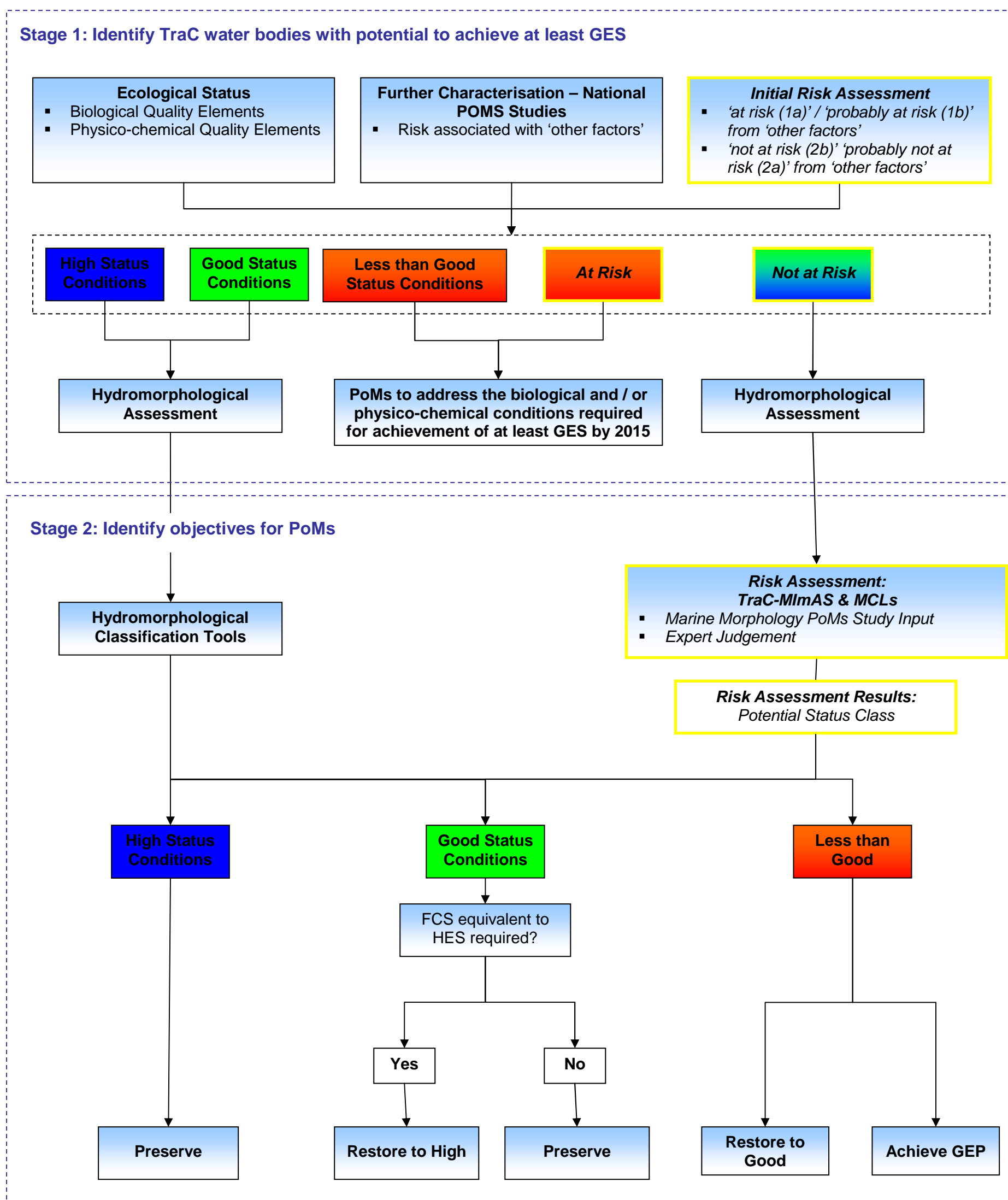


Figure 10.2: Method for the prioritisation of TraC water bodies to assist in the identification of appropriate measures

## **Stage 1 – Identify TraC water bodies with potential to achieve at least GES**

Firstly the biological and physico-chemical components of ecological status of a water body should be determined. There are currently three sources for this information: provisional classification results to be provided by the EPA; further characterised risk determined by national PoMS studies; and initial risk estimates, i.e. water bodies identified as ‘at risk’ or ‘probably at risk’ of failing to achieve GES by the initial risk assessments (2004/2005).

Those water bodies identified as potentially achieving high or good ecological status based on these elements, or found not to be at risk of failing to achieve these status classes should then undergo an assessment of hydromorphological conditions (Stage 2).

As a priority for compliance with the WFD, PoMs are likely to focus on the restoration of the biological and physico-chemical conditions to achieve at least GES by 2015. Water bodies found to be at risk of failing to achieve high and good status, or confirmed as less than good, due to the biological and physico-chemical conditions should not require assessment of hydromorphological conditions.

## **Stage 2 – Identify objectives for PoMs**

On completion of further development and approval of hydromorphological classification tools, the status of hydromorphology can be determined. Prior to these tools, TraC-MImAS can be used to support expert judgement in considering the existing status of hydromorphological conditions.

Following the use of either of these tools, those water bodies indicating potential to achieve high ecological status can be identified. These water bodies will require measures to ensure there is not deterioration of this status class (water bodies identified as priority ‘2’ in Tables 10.1 and 10.2)

Those water bodies indicating good status can be subject to either of the following objectives depending on the presence and required status of protected areas:

- Restore to High if this is required for Favourable Conservation Status (water bodies identified as priority ‘1’ in Tables 10.1 and 10.2)
- Preserve Good Status (water bodies identified as priority ‘3’ in Tables 10.1 and 10.2)

Those water bodies indicating morphological conditions consistent with less than good ecological status can be subject to either of the following objectives which can only be determined following the assessment of technical feasibility and cost:

- Restore to at least Good Status (water bodies identified as priority '4' in Tables 10.1 and 10.2)
- Achieve at least Good Ecological Potential

**Table 10.1: Coastal water bodies and predicted default objectives to help prioritise the application of measures to achieve these objectives**

| Water Body Code | Name                                            | pHMWB | Type | Overall Risk expressed as likely Morphological Status Class | At Risk from Other Factors | SAC / SPA Present - Favorable Conservation Status | Objectives - Morphological Status                                           | Priority - Morphological Status |
|-----------------|-------------------------------------------------|-------|------|-------------------------------------------------------------|----------------------------|---------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------|
| IE_SH_040_0000  | Outer Tralee Bay                                |       | CW5  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_NW_060_0000  | Inver Bay                                       |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_170_0000  | Inner Galway Bay North                          |       | CW5  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SW_100_0300  | White's Marsh                                   |       | CW10 | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_EA_070_0000  | Irish Sea Dublin (HA 09)                        |       | CW5  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_350_0000  | Inner Clew Bay                                  |       | CW5  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_200_0000  | Kilkieran Bay                                   |       | CW5  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SW_100_0200  | Inchydoney                                      |       | CW10 | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_110_0000  | Ballyvaghan Bay                                 |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_260_0000  | Mannin Bay                                      |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_400_0000  | Broadhaven                                      |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_405_0000  | Belmullet Bay                                   |       | CW8  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_NW_140_0000  | Dungloe Bay                                     |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_NW_150_0000  | Rutland Sound                                   |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_NW_160_0000  | Gweedore Bay                                    |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_NW_180_0000  | Tory Island Waters                              |       | CW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_NW_240_0000  | Trawbreaga Bay                                  |       | CW8  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SH_030_0000  | Brandon Bay                                     |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SH_080_0000  | Doonbeg Bay                                     |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SW_100_0000  | Clonakilty Bay                                  |       | CW5  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SW_140_0000  | Roaring Water Bay                               |       | CW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SW_200_0000  | Ballinskelligs Bay                              |       | CW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SW_210_0000  | Portmagee Channel                               |       | CW8  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SW_220_0000  | Valencia Harbour                                |       | CW8  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_160_0700  | Rincarna Pools South                            |       | CW10 | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_WE_160_0710  | Rincarna Pools North                            |       | CW10 | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS                                          | 1 or 3                          |
| IE_SE_050_0000  | Eastern Celtic Sea (HAs 13;17)                  |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_NW_190_0000  | Sheephaven Bay                                  |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SE_090_0000  | Bannow Bay                                      |       | CW8  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_WE_420_0000  | Killala Bay                                     |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_WE_360_0000  | Blacksod Bay                                    |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_NW_070_0000  | Donegal Bay Northern                            |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_NW_120_0000  | Gweebarra Bay                                   |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SH_060_0000  | Mouth of the Shannon (HAs 23;27)                |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SH_010_0000  | Southwestern Atlantic Seaboard (HA 23)          |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_WE_460_0000  | Ballysadare Bay                                 |       | CW8  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_WE_450_0000  | Sligo Bay                                       |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_WE_430_0000  | Donegal Bay Southern                            |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SE_100_0000  | Waterford Harbour                               |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SH_100_0000  | Liscannor Bay                                   |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SW_230_0000  | Outer Dingle Bay                                |       | CW2  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SW_110_0000  | Rosscarbery Bay                                 |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_NW_170_0000  | Ballyness Bay                                   |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_WE_310_0000  | Killary Harbour                                 |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_EA_020_0000  | Northwestern Irish Sea (HA 08)                  |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_NW_220_0000  | Lough Swilly                                    |       | CW5  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_SW_170_0000  | Outer Bantry Bay                                |       | CW2  | Good                                                        | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_060_1000  | Raffeen Lake, Shanbally                         |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_080_0200  | Kinsale Marsh, Commoge                          |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_140_0100  | Ballyrisode Bridge Lagoon                       |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_010_0000  | Aran Islands, Galway Bay, Connemara (HAs 29;31) |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_230_0000  | Bertraghboy Bay                                 |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_250_0000  | Western Atlantic Seaboard (HAs 32;33;34)        |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_300_0000  | Ballynakill Bay                                 |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_340_0000  | Clew Bay                                        |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_370_0000  | Blacksod Bay SW / Achill Sound                  |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_380_0000  | Bellacragher Bay                                |       | CW8  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_EA_040_0000  | Rockabill                                       |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NB_025_0000  | Louth Coast (HA 06)                             |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NW_010_0000  | Donegal Bay (Erne)                              |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NW_080_0000  | McSwines Bay                                    |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NW_100_0000  | Northwestern Atlantic Seaboard (HA 37,38)       |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NW_110_0000  | Loughros Bay                                    |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NW_130_0000  | Trawena Bay                                     |       | CW8  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NW_150_0100  | Sally's Lough                                   |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NW_230_0000  | Northern Atlantic Seaboard (HAs 40,02)          |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SH_020_0000  | Smerwick Harbour                                |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SH_060_1300  | Scattery Island Lagoon                          |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SH_060_1400  | Cloonconeen Pool                                |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SH_070_0000  | Shannon Plume (HAs 27;28)                       |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_010_0000  | Western Celtic Sea (HAs 18;19;20)               |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_020_0000  | Youghal Bay                                     |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_080_0000  | Kinsale Harbour                                 |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_090_0000  | Courtmacsherry Bay                              |       | CW5  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_120_0000  | Fastnet Waters                                  |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_150_0000  | South Western Atlantic Seaboard (HAs 21;22)     |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_160_0000  | Dunmanus Bay                                    |       | CW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_130_0000  | Aughinish Bay                                   |       | CW8  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_200_0100  | Lettermullen Pool                               |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_420_0200  | Cartoon Lough, Killala Bay                      |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_460_0200  | Portavaud East, Ballysadare Bay                 |       | CW10 | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_050_0000  | Outer Cork Harbour                              |       | CW5  | High                                                        | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_180_0000  | Berehaven                                       |       | CW5  | Poor                                                        | No                         |                                                   | Restore to at least Good by 2015                                            | 4                               |
| IE_NW_085_0000  | Killybegs Harbour                               | Yes   | CW8  | Less than Good                                              | Yes                        |                                                   | Achieve at least GEP                                                        | GEP                             |
| IE_SE_045_0000  | Rosslare Harbour                                | Yes   | CW5  | Less than Good                                              | Yes                        |                                                   | Achieve at least GEP                                                        | GEP                             |
| IE_SW_060_0000  | Cork Harbour                                    | Yes   | CW8  | Less than Good                                              | Yes                        |                                                   | Achieve at least GEP                                                        | GEP                             |
| IE_SH_050_0000  | Inner Tralee Bay                                |       | CW8  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |



**Table 10.1 (continued): Coastal water bodies and predicted default objectives to help prioritise the application of measures to achieve these objectives**

| Water Body Code | Name                                         | pHMWB | Type | Overall Risk expressed as likely Morphological Status Class | At Risk from Other Factors | SAC / SPA Present - Favorable Conservation Status | Objectives - Morphological Status                                           | Priority - Morphological Status |
|-----------------|----------------------------------------------|-------|------|-------------------------------------------------------------|----------------------------|---------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------|
| IE_SW_040_0000  | Ballycotton Bay                              |       | CW5  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_090_0000  | Dublin Bay                                   |       | CW5  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_060_0000  | Malahide Bay                                 |       | CW8  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NB_040_0000  | Outer Dundalk Bay                            |       | CW5  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_120_0000  | Tramore Back Strand                          |       | CW8  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_100_0000  | Outer Galway Bay                             |       | CW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_140_0000  | Dungarvan Harbour                            |       | CW5  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_470_0000  | Sligo Harbour                                |       | CW8  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_010_0000  | Southwestern Irish Sea (HAs 11;12)           |       | CW5  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_040_0000  | Wexford Harbour                              |       | CW8  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| GBNIIIE6NB030   | Carlingford Lough (NB_030_0000)              |       | CW8  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_010_0000  | Boyne Estuary Plume Zone                     |       | CW5  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| GBNIIIE6NW250   | Lough Foyle (NW_250_0000)                    |       | CW8  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_100_0000  | Southwestern Irish Sea - Killiney Bay (HA10) |       | CW5  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_190_0000  | Outer Kenmare River                          |       | CW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_020_0000  | Bundoran Bay                                 |       | CW5  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_200_0000  | Mulroy Bay Broadwater                        |       | CW8  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_210_0000  | Mulroy Bay Northwater                        |       | CW8  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_100_0400  | Clogheen Strand                              |       | CW10 | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_110_0000  | Tramore Bay                                  |       | CW5  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_140_0000  | Southwestern Irish Sea - Brittas Bay (HA 10) |       | CW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_240_0000  | Dingle Harbour                               |       | CW5  | Good                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| GBNIIIE6NB010   | Portstewart Bay                              |       | CW2  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| GBNIIIE6NB020   | Mourne Coast                                 |       | CW5  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_160_0000  | Inner Galway Bay South                       |       | CW5  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_190_0000  | Casla Bay                                    |       | CW5  | High                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |

**Table 10.2: Transitional water bodies and predicted default objectives to help prioritise the application of measures to achieve these objectives**

| Water Body Code | Name                                      | pHMWB | Type | Overall Risk expressed as likely Morphological Status Class | At Risk from Other Factors | SAC / SPA Present - Favorable Conservation Status | Actions - Morphological Status     | Priority - Morphological Status |
|-----------------|-------------------------------------------|-------|------|-------------------------------------------------------------|----------------------------|---------------------------------------------------|------------------------------------|---------------------------------|
| IE_WE_160_0800  | Dunbulcaun Bay                            |       | TW2  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SE_140_0200  | Brickey Estuary                           |       | TW2  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SW_190_0200  | Kilmakilloge Harbour                      |       | TW2  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_200_0200  | Camus Bay                                 |       | TW2  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SW_190_0300  | Inner Kenmare River                       |       | TW2  | Good                                                        | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_NW_050_0100  | Inner Donegal Bay                         |       | TW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_NW_160_0200  | Gweedore Estuary                          |       | TW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SW_020_0400  | Lackaroe (Glendine Estuary)               |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SW_110_0100  | Kilkeran Lake                             |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SW_140_0200  | Lissagriffin Lake                         |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SW_160_0100  | Farranamagh Lough                         |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_170_0500  | Oranmore Bay                              |       | TW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_480_0100  | Drumcliff Estuary                         |       | TW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_NW_110_0100  | Owenea Estuary                            |       | TW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SW_190_0100  | Ardgroom                                  |       | TW2  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_020_0100  | Loch Mor, Inis Oirr                       |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_030_0100  | Port na Cora lochs, Inis Meain            |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_040_0100  | Loch na gCadhan, Inis Meain               |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_050_0100  | Loch an tSaile, Arainn                    |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_055_0100  | Baile an Duin Lagoon                      |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_060_0100  | Loch an Chara, Arainn                     |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_070_0100  | Loch Phort Chorruch, Arainn               |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_080_0100  | Loch Dearg, Arainn                        |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_090_0100  | Loch Amurvy, Arainn                       |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_110_0100  | Muckinish Lough                           |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_120_0100  | Murree Lough                              |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_140_0100  | Aughinish Lagoon                          |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_140_0200  | Carrownahallia Lagoon, Aughinish          |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_150_0100  | Rossalia Lagoon                           |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_160_0200  | Bridge Lough, Knockakilleen               |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_160_0300  | Loughaungreena (Dorus Loughs)             |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_160_0400  | Lough Fadda (Dorus Loughs)                |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_160_0500  | Lough Namona (Dorus Loughs)               |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_170_0100  | Mweeloon Pool South                       |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_170_0150  | Mweeloon Pool North                       |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_170_0200  | Loughaunascalia, Ardfry Point             |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_170_0400  | Turreen Lough (Rinville West)             |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_200_0300  | Loch Fhada Upper Pools                    |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_200_0400  | Loch an Ghadai                            |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_200_0500  | Loch Fhada                                |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_200_0800  | Loch Cara Fionnla                         |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_200_1000  | Loch Doire Bhanbh (Derravonniff)          |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_200_1200  | Loch Conaortha (L. Aconeera)              |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_220_0100  | Lough an Mhuilinn (Mill Lough)            |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_240_0100  | Ballyconneely Lough                       |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_260_0100  | Loch an tSaile (Lough Athola), Mannin Bay |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_280_0100  | Lough B <sub>s</sub> Finne, Inishbofin    |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_320_0100  | Corragaun Lough                           |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_330_0100  | Roonagh Lough                             |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_WE_460_0400  | Tanrego Intake                            |       | TW6  | At least Good                                               | No                         | TBC                                               | Restore to High if required by FCS | 1 or 3                          |
| IE_SH_040_0100  | Lough Gill                                |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_SE_090_0100  | Corock Estuary                            |       | TW2  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_180_0100  | Loch O Dheas, Tory Island                 |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_SW_170_0400  | Glengarriff Harbour                       |       | TW2  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_160_0100  | Loch Chionn Caslach ( Kincas L. )         |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_140_0100  | Maghery Lough                             |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_SH_050_0200  | Blennerville Lake East                    |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_SH_050_0300  | Blennerville Lake West                    |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_SH_060_0400  | Poulaweala Lough / Quayfield Lough        |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_SH_080_0100  | Doonbeg Estuary                           |       | TW2  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_220_0400  | Crana Estuary                             |       | TW2  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| GBNIE5NB030010  | Newry Estuary (NB_030_0100)               |       | TW2  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_200_0200  | Carrick Beg Lough (South)                 |       | TW6  | High                                                        | No                         |                                                   | Preserve                           | 2                               |
| IE_SH_110_0100  | Aille Clare Estuary                       |       | TW2  | High                                                        | No                         |                                                   | Preserve                           | 2                               |
| IE_SW_070_0100  | Oysterhaven                               |       | TW2  | High                                                        | No                         |                                                   | Preserve                           | 2                               |
| IE_SW_170_0500  | Adrigole Harbour                          |       | TW2  | High                                                        | No                         |                                                   | Preserve                           | 2                               |
| IE_WE_440_0100  | Easky Estuary                             |       | TW2  | High                                                        | No                         |                                                   | Preserve                           | 2                               |
| IE_NW_160_0500  | Meenaclady                                |       | TW2  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_WE_200_1100  | Loch an tSaile, North of Camus Bay        |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_040_0100  | Durnesh Lough                             |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_160_0300  | Moorlagh                                  |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_NW_120_0100  | Gweebarra Estuary                         |       | TW2  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |
| IE_WE_200_0600  | Loch Tanai                                |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                           | 2                               |



**Table 10.2 (continued): Transitional water bodies and predicted default objectives to help prioritise the application of measures to achieve these objectives**

| Water Body Code  | Name                                               | pHMBW | Type | Overall Risk expressed as likely Morphological Status Class | At Risk from Other Factors | SAC / SPA Present - Favorable Conservation Status | Actions - Morphological Status                                              | Priority - Morphological Status |
|------------------|----------------------------------------------------|-------|------|-------------------------------------------------------------|----------------------------|---------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------|
| IE_WE_200_0700   | Loch an Aibhinn, Camus Bay                         |       | TW6  | High                                                        | No                         | TBC                                               | Preserve                                                                    | 2                               |
| IE_NW_060_0100   | Eany Water Estuary                                 |       | TW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_060_0100   | Rostellan Lake                                     |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_060_0200   | Cuskinny Lake                                      |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_060_1100   | Lough Beg / Curraghbinny                           |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_070_0200   | Oysterhaven Lake, Clashroe                         |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_150_0100   | Reen Point Pool                                    |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_170_0200   | Kilmore Lake, Whiddy Island                        |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SW_170_0300   | Reenydonagan Lough                                 |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NB_040_0600   | Corstown Lagoon                                    |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_SE_130_0100   | Mahon Estuary                                      |       | TW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_190_0200   | Lough Faddacrussan                                 |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_210_0100   | Loch an Chaorain (L. Keeraun)                      |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_290_0100   | Lough Anillaun, Cleggan Bay                        |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_370_0100   | Dooniver Loughs                                    |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_420_0100   | Cloonaghmore Estuary                               |       | TW2  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_460_0100   | Portavaud West, Ballysadare Bay                    |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_NB_030_0200   | Carlingford Lagoons (Greenore Gold Course Lagoons) |       | TW6  | At least Good                                               | No                         |                                                   | Preserve                                                                    | 3                               |
| IE_WE_180_0100   | Spiddal Estuary                                    |       | TW2  | Moderate                                                    | No                         |                                                   | Restore to at least Good by 2015                                            | 4                               |
| IE_EA_060_0100   | Broadmeadow Water                                  | Y     | TW6  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_SE_100_0200   | New Ross Port                                      | Y     | TW2  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_SH_060_0100   | Cashen                                             | Y     | TW2  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_SH_060_0200   | Upper Feale Estuary                                | Y     | TW2  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_SH_060_0350   | Foynes Harbour                                     | Y     | TW2  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_SH_060_0900   | Limerick Dock                                      | Y     | TW2  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_EA_090_0300   | Liffey Estuary Lower                               | Y     | TW2  | Less than Good                                              | Yes                        |                                                   | Achieve at least GEP                                                        | GEP                             |
| IE_SW_060_0900   | Lee (Cork) Estuary Lower                           | Y     | TW2  | Less than Good                                              | Yes                        |                                                   | Achieve at least GEP                                                        | GEP                             |
| IE_SE_100_0500   | Lower Suir Estuary / Waterford Harbour             | Y     | TW2  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_SW_060_0750   | Lough Mahon                                        | Y     | TW2  | Less than Good                                              | Yes                        | TBC                                               | Achieve at least GEP                                                        | GEP                             |
| IE_SE_040_0100   | North Slob Channels                                |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_060_0100   | Lady's Island Lake                                 |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_050_0100   | Rogerstown Estuary                                 |       | TW2  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_080_0100   | Mayne Estuary                                      |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_080_0200   | Ballyteige Channels                                |       | TW6  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_080_0100   | Bridgetown Estuary                                 |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_030_0100   | Womanagh Estuary                                   |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NB_040_0400   | Fane Estuary                                       |       | TW2  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NB_040_0100   | Inner Dundalk Bay                                  |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NB_040_0300   | Ballymascanlan Estuary                             |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_230_0200   | Castlemaine Harbour                                |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_230_0100   | Cromane                                            |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_160_0600   | Lough Sallagh (Dorus Loughs)                       |       | TW6  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_170_0700   | Corrib Estuary                                     |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_160_0100   | Kinvarra Bay                                       |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_140_0100   | Colligan Estuary                                   |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_470_0100   | Garavoge Estuary                                   |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_400_0200   | Sruwaddacon Bay                                    |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_390_0100   | Tullaghan Bay                                      |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_220_0200   | Blanket Nook Lough                                 |       | TW6  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_220_0100   | Swilly Estuary                                     |       | TW2  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_060_0300   | Lower Shannon Estuary                              |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_060_0800   | Upper Shannon Estuary                              |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_060_1100   | Fergus Estuary                                     |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_060_1200   | Clondralaw Bay                                     |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_010_0100   | Boyne Estuary                                      |       | TW2  | Bad                                                         | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_100_0100   | Clonakilty Harbour                                 |       | TW2  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_120_0100   | Kilcoole Marsh                                     |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| GBNIIIE5NW250010 | Foyle and Faughan Estuaries (NW_250_0100)          |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |

**Table 10.2 (continued): Transitional water bodies and predicted default objectives to help prioritise the application of measures to achieve these objectives**

| Water Body Code | Name                                               | pHMWB | Type | Overall Risk expressed as likely Morphological Status Class | At Risk from Other Factors | SAC / SPA Present - Favorable Conservation Status | Actions - Morphological Status                                              | Priority - Morphological Status |
|-----------------|----------------------------------------------------|-------|------|-------------------------------------------------------------|----------------------------|---------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------|
| IE_SE_070_0100  | Tacumshin Lake                                     |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_130_0100  | Broad Lough                                        |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_220_0300  | Inch Lough                                         |       | TW6  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_020_0100  | Owenavorrhagh Estuary                              |       | TW2  | Bad                                                         | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NB_040_0500  | Glyde Estuary                                      |       | TW2  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_010_0100  | Duff Estuary                                       |       | TW2  | Moderate                                                    | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_110_0200  | Rosscarbery Harbour                                |       | TW6  | Moderate                                                    | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_090_0100  | North Bull Island                                  |       | TW6  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_090_0200  | Tolka Estuary                                      |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_100_0250  | Barrow Nore Estuary Upper                          |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_100_0550  | Middle Suir Estuary                                |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_060_0700  | Maigue Estuary                                     |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_020_0100  | Lower Blackwater M Estuary / Youghal Harbour       |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_090_0400  | Liffey Estuary Upper                               |       | TW2  | Less than Good                                              | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_150_0100  | Avoca Estuary                                      |       | TW2  | Less than Good                                              | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_060_0950  | Lee (Cork) Estuary Upper                           |       | TW2  | Less than Good                                              | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_080_0100  | Lower Bandon Estuary                               |       | TW2  | Less than Good                                              | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NB_040_0200  | Castletown Estuary                                 |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_040_0200  | Lower Slaney Estuary                               |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_050_0100  | Lee K Estuary                                      |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_060_0400  | Owenacurra Estuary                                 |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_060_0700  | Lough Mahon (Harper's Island)                      |       | TW2  | Less than Good                                              | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_060_0800  | Glashaboy Estuary                                  |       | TW2  | Less than Good                                              | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_110_0100  | Dargle Estuary                                     |       | TW2  | Good                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_190_0500  | Drongawn Lough, Sneem                              |       | TW6  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_060_1200  | Owenboy Estuary                                    |       | TW2  | Good                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_100_0100  | Barrow Suir Nore Estuary (Waterford Harbour Lower) |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_350_0100  | Westport Bay                                       |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_350_0200  | Newport Bay                                        |       | TW2  | Good                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_040_0300  | Upper Slaney Estuary                               |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_100_0300  | Upper Barrow Estuary                               |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_100_0600  | Upper Suir Estuary                                 |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_060_0600  | Deel Estuary                                       |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_090_0100  | Lough Donnell                                      |       | TW6  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_020_0500  | Upper Blackwater M Estuary                         |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_060_0300  | North Channel Great Island                         |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_060_0600  | Slatty Bridge, Fota Island                         |       | TW6  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_420_0300  | Moy Estuary                                        |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_080_0300  | Upper Bandon Estuary                               |       | TW2  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_020_0100  | Drowes Estuary                                     |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_190_0100  | Lackagh Estuary                                    |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_100_0400  | Nore Estuary                                       |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_130_0100  | Ilenn Estuary                                      |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_190_0400  | Blackwater K Estuary                               |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_190_0600  | Sneem Harbour                                      |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_460_0300  | Ballysadare Estuary                                |       | TW2  | At least Good                                               | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_110_0300  | Glandore Harbour                                   |       | TW2  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_220_0100  | Ferta                                              |       | TW2  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_230_0100  | Roundstone Bay                                     |       | TW2  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |



**Table 10.2 (continued): Transitional water bodies and predicted default objectives to help prioritise the application of measures to achieve these objectives**

| Water Body Code | Name                       | pHMWB | Type | Overall Risk expressed as likely Morphological Status Class | At Risk from Other Factors | SAC / SPA Present - Favorable Conservation Status | Actions - Morphological Status                                              | Priority - Morphological Status |
|-----------------|----------------------------|-------|------|-------------------------------------------------------------|----------------------------|---------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------|
| IE_WE_270_0100  | Clifden Bay                |       | TW2  | At least Good                                               | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_170_0300  | Ardfry Oyster Pool         |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_170_0600  | Renmore Lough, Galway City |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_310_0100  | Erriff Estuary             |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_190_0100  | Casla Estuary              |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_060_1000  | Shannon Airport Lagoon     |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NB_030_0250  | Shilties Lough             |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SE_040_0400  | South Slob Channel         |       | TW6  | High                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_170_0100  | Inner Bantry Bay           |       | TW2  | High                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_090_0100  | Teelin Bay                 |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_NW_030_0100  | Erne Estuary               |       | TW2  | High                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_410_0100  | Bunatrahair Bay            |       | TW2  | High                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SH_100_0100  | Inagh Estuary              |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_SW_090_0200  | Argideen Estuary           |       | TW2  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_WE_350_0300  | Furnace Lough              |       | TW6  | High                                                        | Yes                        | TBC                                               | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |
| IE_EA_030_0100  | Nanny Estuary              |       | TW2  | High                                                        | Yes                        |                                                   | POMS required for Other Factors. Address morphology in 2 <sup>nd</sup> RBMP | N/A                             |

### 10.4.3 Identification of Appropriate Measures

Following the prioritisation of TraC water bodies (Section 10.3.2), the most appropriate measures required to achieve the relevant objectives need to be determined.

Once prioritised, these water bodies can be assessed for the pressures causing the greatest risk and preventing a water body achieving its required status. From this information, the possible measures or mitigation can be selected and prioritised from the good practice information. These measures can then be assessed to ensure beneficial changes to the water body and to ensure they are technically feasible and cost effective.

Figure 10.3 below outlines the various steps required to identify the most appropriate measures for each priority water body with the aim to either preserve the existing status or restore morphological conditions to achieve a higher status class. The application of Steps 1 to 8 is summarised below. To help demonstrate this process, four examples of TraC water bodies are detailed for each objective:

- Priority 1: Restore high morphological status in any TraC water bodies where 'protected area' favourable conditions require high status
  - Example: Inner Kenmare River (SWRBD)
- Priority 2: Preserve high morphological status in existing high status TraC water bodies by managing existing pressures and controlling new development
  - Example: Glengariff Harbour (SWRBD)
- Priority 3: Preserve good morphological status in existing good status TraC water bodies by managing existing pressures and controlling new development
  - Example: Outer Bantry Bay (SWRBD)
- Priority 4: Restore good morphological status in any TraC water bodies that would otherwise be of good status (this implies that all other water quality elements are at least good status)
  - Example: Berehaven (SWRBD)

It is important to note that, to facilitate reporting, the risk assessment results of further characterisation are documented here as 'status class', e.g. where TraC-MImAS has indicated no risk to HES, the status class is assumed to be HES, and where TraC-MImAS assessment was not undertaken, Tables 10.1 and 10.2 tabulate status as 'At

Least Good' or 'Less than Good' based on the results of the initial risk assessments (refer to assumptions made in Section 6.3 of this report).

Further guidance will be required from the relevant authorities in order to assist this decision making process. Once an appropriate measure is proposed this must then be subjected to the appropriate existing assessment and regulatory mechanism to ensure that they are appropriate and morphologically beneficial within the wider context.

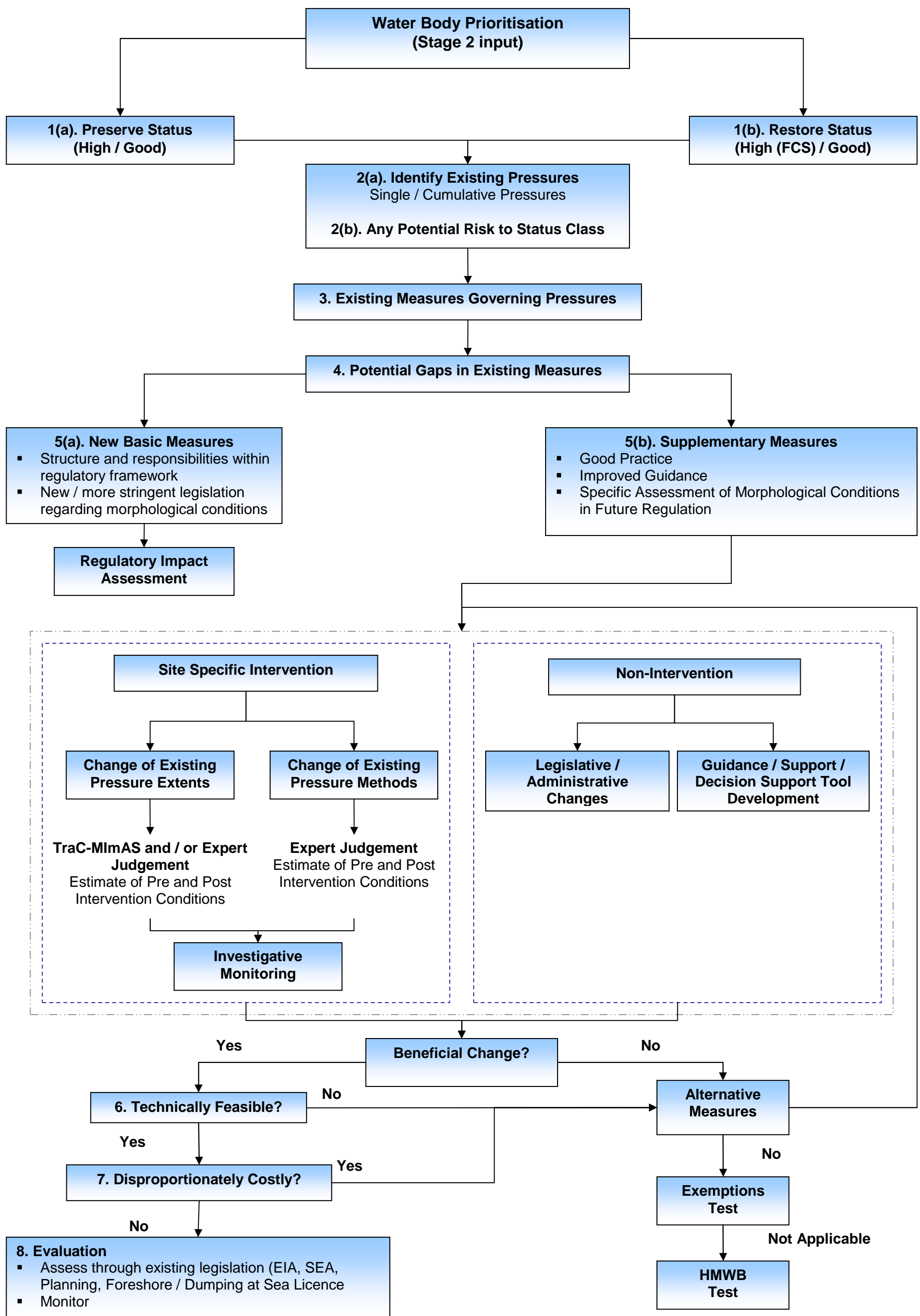


Figure 10.3: Identification of Appropriate Morphology Measures for TraC water bodies

## Step 1. Water Body Objectives

The preservation of high or good status can be achieved through the control of both existing and future developments and activities, the latter of which is discussed further in Chapter 11. Changes in status are likely to occur from two potential sources; development, being the most significant, and external or natural changes. The latter source may only be detected by monitoring. Temporary deterioration in status is permitted under the WFD when this is the result of circumstances of natural cause or *force majeure* which are exceptional or could not reasonably have been foreseen (Article 4(6)).

Restoration of a water body to high or good status can require the removal and / or mitigation of existing pressures.

## Step 2. Existing Pressures

This step requires the identification of the existing pressures impacting on a water body, and, of particular relevance to the objective of no deterioration. Any potential risks posed by these pressures to the existing status class should be highlighted.

The Marine Morphology PoMs study provides information on the types, extents and locations of morphological pressures estimating the cumulative impacts where multiple pressures are present. From this information, it can be established if the pressures impact significantly on the intertidal or subtidal zones, or contribute to a single significant pressure or cumulative effect.

For those water bodies that require restorative measures, the risk assessments using TraC-MImAS, completed as part of the further characterisation of risk (Chapter 6), can indicate the most significant pressures impacting on a water body (impact rating and potential zone of impact) thereby focusing the review of appropriate measures. With regard to those water bodies which require preservation of morphological status, TraC-MImAS can help identify potential risks to status class by providing an indication of the available system capacity currently used by physical modifications. On reviewing pressure extents identified for this study, it is important to consider the confidence in data used (this is expressed in Appendix 6-3 by the availability of coastal images when digitising / assessing pressures).

Examples are provided as follows:

#### **Inner Kenmare River (Priority 1)**

The predicted objective for this water body is to achieve HES. For the purpose of this example, it is assumed that the Kenmare River SAC requires high ecological status to achieve FCS.

The existing pressures identified for Inner Kenmare River are as follows:

- Other disturbances to seabed (aquaculture dredging)
- Flow and sediment manipulation structures
- Piled structures
- Shoreline reinforcement

The most significant pressure identified is considered to be that associated with the areas licensed for aquaculture dredging, the extent of which indicates a failure of HES as well as a risk to the maintenance of GES.

Detailed assessment of the potential impact of aquaculture practices on morphology is beyond the scope of this study. Therefore the risk identified here is only indicative based on the assumption of shellfish dredged areas. Consequently, the risk predicted for water bodies subject to these practices may be high than the actual risk posed. Prior to further assessment and prioritisation of appropriate measures for this water body the exact extents and intensity of this activity should be confirmed with the relevant authorities as a minimum.

#### **Glengariff Harbour (Priority 2)**

The default objective predicted for this water body is to maintain HES.

The further characterisation of risk to this water body estimated that the type and extent of existing pressures do not currently impact significantly on morphological conditions and therefore indicate its potential to achieve HES. The pressures identified are as follows:

- High impact land claim (associated with the harbour itself)
- Flow and sediment manipulation structures
- Piled structures
- Shoreline reinforcement

On review of the pressure footprints, the results of further characterisation indicate a significant risk to the maintenance of the existing morphological condition, and therefore a risk to HES. Prior to further validation via monitoring etc, the extent of the reclaimed intertidal area indicates that 4.2% of the intertidal area's system capacity is used (5% is the boundary for GES), i.e. its ability to withstand further morphological change without adversely affecting ecology is significantly reduced by existing pressures. It can therefore be concluded that the management of future development and activities associated with this harbour is of primary importance in preventing deterioration of status.

### **Outer Bantry Bay (Priority 3)**

The default objective predicted for this water body is to maintain GES. Outer Bantry Bay is not currently associated with the Natura 2000 network.

The pressures identified for Outer Bantry Bay are as follows:

- Low impact dredging (maintenance)
- Other disturbances to seabed (aquaculture dredging)
- Disposal of dredgings
- Flow and sediment manipulation structures
- Piled structures
- Shoreline reinforcement

The most significant pressure is associated with the maintenance of shipping channels, the extent of which indicates a significant contribution to the failure of HES. The extent of pressures identified does not currently indicate a significant risk to the maintenance of GES based on the Morphological Condition Limits (MCLs).

### **Berehaven (Priority 4)**

The default objective predicted for Berehaven is to restore status to at least GES by 2015.

The pressures identified for this water body are as follows:

- Land claim
- Dredging
- Other disturbances to seabed (aquaculture dredging)
- Flow and sediment manipulation structures
- Piled structures
- Shoreline reinforcement

The most significant pressures identified as impacting on this water body are low impact dredging associated with maintenance of the shipping channel and potential shellfish dredging, both of which contribute to the potential failure of GES. As noted above, the potential impact of aquaculture practices on morphology is beyond the scope of this study, and the risk associated with these practices are indicative and based on estimated pressure extents. Prior to further assessment and prioritisation of appropriate measures for this water body the exact extents and intensity of this activity should be confirmed with the relevant authorities as a minimum.

### **Step 3. Existing Measures**

The pressure analysis described above identifies the morphological pressures which have or can potentially lead to a water body failing its required objective. This can then help focus the identification of existing measures controlling / mitigating the current operations.

The measures currently in place to control the existing operations relating to these pressures can generally be categorised as follows:

- Planning controls
- Environmental impact thresholds and controls
- Ministerial licenses and leases
- Aquaculture production controls (generally focused on water pollution)
- Good practice measures (mitigation already in place)

As identified in Section 10.2, potential gaps associated with the existing mechanisms may limit adequate consideration of the impact on morphological conditions.

The following chapter, Chapter 11, specifically outlines the gaps identified in the existing regulatory framework for Irish TraC waters and makes recommendations for the enhancement of this framework.

With regard to mitigation measures, various EISs relating to physical alterations of TraC waters were reviewed for this study (Appendix 3-2). This register of EISs can, for a limited number of water bodies, identify where the potential impacts of physical alterations have been considered in terms of baseline assessments and proposed mitigation measures.



On review of potential measures for a specific water body, those currently mitigating the pressures on this water body will need to be identified to enable a specific review of effectiveness. The effectiveness of a measure should be broken down into two aspects:

- **Morphological / biological effectiveness:** Existing morphology / biology monitoring programmes identified in Chapter 4, the review of TraC-MImAS in Chapter 5, and the Good Practice Review in Chapter 7 can contribute to the assessment of this relationship. However, as emphasised throughout this report, a national programme clarifying the relationship between morphology and ecology is fundamental to the appropriate assessment of impact, objectives and measures for TraC water bodies.
- **Timescales:** This requires an estimate of the time when the effectiveness of the measure is expected to be fully observed i.e. will the measure contribute to the achievement of the relevant objective by 2015? This can only be considered on a site-by-site basis. With the exception of regulatory measures, it is considered that most morphology related measures will deliver results gradually over time. Upstream measures such as a fish pass may demonstrate benefits within a short space of time; however, measures such as reducing extent of dredging or culverts in breakwaters may not be realised for many years.

#### Step 4. Potential Gaps in Existing Measures

Using information provided by this study a review of existing measures will help identify what new / supplementary measures, if any, can be taken to control, mitigate, or remove these pressures, with the aim of achieving the required objective. The following examples are used to illustrate this:

**Inner Kenmare River:** The most significant pressure identified for this water body is that associated with the dredging of shellfish, a detailed review of which is beyond the scope of this study. It is considered that very few TraC water bodies will require improvement measures to increase the status of a water body from good to high in order to meet FCS. However, such a situation will require a very detailed site specific assessment guided by the NPWS. Legacy issues will require consideration, for example, aquaculture activities may pre-date the designation of Natura 2000 sites and therefore may contribute to the structure and function of its status.

**Glengariff Harbour:** This water body is required to maintain HES, but existing pressures, specifically land claim, within this water body are currently indicating a significant risk to this objective. Prior to the reclamation, this development would have undergone appropriate assessment as required by the Planning and Foreshore Acts. It is assumed that if potentially significant environmental effects were identified during this assessment, then an overriding public interest or justification of development would have been concluded at the time. The details of the development are not known, but the mitigation options for such a pressure (land claim) were likely to have been restricted to the assessment of alternative locations. The use of piled supports is an alternative design option, but this can restrict the development and future use of the new land. The measures relevant to such a development are considered to have been appropriate; however, to prevent further deterioration of this harbour the regulation of future development and operations in the harbour is fundamental. Those relevant gaps identified in the existing regulatory framework are outlined in Sections 10.3 and Chapter 11.

**Outer Bantry Bay**, which also requires the maintenance of status (GES), is at most risk from the operation and maintenance of shipping channels. Within this water body is the Whiddy Island Oil Terminal, which in contrast to the small harbours of Inner Bantry Bay and Glengariff, can facilitate larger vessels. Harbours and terminals such as this are legally required to ensure safe navigation.

A review of the maintenance dredging operations as well as future proposals for the harbours and oil terminal is key to identifying any specific measures to mitigation existing activities. Similar to Glengariff Harbour, the control of future operations is necessary for the maintenance of status.

**Berehaven** is required to improve its status to GES, therefore, it can be assumed that the existing measures are not sufficient to achieve the WFD objective of GES. New measures should be focused on the specific pressures identified via reference to the Good Practice Review of Chapter 7.

## **Step 5.        New Basic / Supplementary Measures**

The implementation, in full, of basic measures is of primary importance to the maintenance of ecological status. Any significant gaps in measures identified by the

previous steps must be addressed to enable achievement of the relevant objectives and therefore compliance with the WFD. For those water bodies requiring restoration the implementation of supplementary measures will initially be required to achieve the required status.

### New Basic Measures

Any new basic measures should take the form of legislation outlining the structure and responsibilities of regulatory bodies to enhance the existing control of coastal development and activities.

New / more stringent legislation regarding morphological conditions cannot be advised at this time. Further monitoring and detailed assessment of the relationship between ecology and morphology is imperative to the refinement of the TraC-MImAS morphological condition limits or other appropriate standards for the assessment of morphological condition.

New basic measures may be subject to Regulatory Impact Assessment.

### Supplementary Measures

Figure 10.3 identifies three forms of potential supplementary measures:

- i. **Site specific intervention (pressure extents):** in the extreme this could involve the removal of the pressure in question, but can also include practices such as managed realignment or reducing dredging areas. The potential improvement of status may be reviewed through the use of TraC-MImAS. However, this tool cannot contribute to the assessment of timescales (Step3). With regard to mitigating proposed pressures, the feasibility of alternative locations and timescales should be investigated.
- ii. **Site specific intervention (pressure methods):** these measures do not entail a change in the footprint of a pressure as measured by TraC-MImAS, but a change in the operations. Possible measures can include an alternative method of operating the pressure which may result in a reduced ecological impact. The frequency of activities can be taken into account, as they may be seasonal or annual, and further study or investigation may indicate that this could be carried out less frequently. Benefits of these measures cannot be screened by TraC-MImAS; however, ecological improvement may be detected through monitoring.

The effectiveness of such site specific intervention measures is summarised in the Good Practice Guide (Chapter 7).

- iii. **Non intervention methods**, such as regulation, more comprehensive / stringent guidelines, awareness programmes and support systems, including management and ICZM. Expert judgement may be required to determine the benefit of these measures. This can be assisted by the various case studies addressed in Chapter 7 of this report.

As recommended in Chapter 7, in reviewing generic Good Practice, it is important to emphasise that measures, such as those outlined above, which have proven successful in one location may not be directly applicable in other environments. Therefore, in deciding the most appropriate measures, site specific investigations and designs should be considered in the context of a wider strategy (RBMPs).

Specific options for the mitigation and / or removal of pressures are recommended in Chapter 7. With regard to the future control of development and activities, Chapter 11 assesses the existing regulatory framework and makes recommendations for supplementary measures to improve this process.

## **Step 6. Technical Feasibility**

As indicated in Figures 7.2 and 7.3 of Chapter 7, the question that should be asked when considering feasibility is ‘are the measures technically feasible given *site specific considerations*?’

Measures such as site specific intervention measures can be used to address specific pressures; however, in practice their application may not be feasible. The marine morphology Good Practice Review documents the feasibility of some measures through the review of various case studies. Links to practical guidance such as the ‘Development of hydro-morphological improvement targets for surface water bodies’ (SNIFFER, 2005) are also provided. This SNIFFER study outlines various measures to address specific pressures on TraC waters, indicating the feasibility of these measures as well as their ability to mitigate the pressure and result in a beneficial change.

The feasibility of morphology measures should also consider local acceptability and enforceability (responsible organisations and mechanisms for delivery) when prioritising measures. Local acceptability of stakeholders is of particular relevance to TraC morphology due to the international importance of these water bodies (habitat

protection, international competitiveness of ports / navigation and food export sectors). With regard to enforceability, various gaps in the existing framework were identified in Section 10.2 – 10.4. The recommendations made in relation to these gaps are measures in themselves and should be addressed to facilitate the effective assessment of other measures.

If the measures are not considered feasible, alternatives should then be assessed. If suitable measures cannot be identified in order to achieve the required objective by 2015, then a review of exemptions permitted under Article 4 of the WFD should be undertaken.

If the conditions of the exemptions cannot be met a water body may need to be considered as heavily modified, to achieve at least good ecological potential by 2015.

## **Step 7. Cost**

The costing of individual measures based on the information available to date has proved difficult. However, the cost effectiveness of implementing morphological pressures is addressed, where possible, in Chapter 7. As noted in the introduction those measures achievable at minimum costs typically include the development or application of codes of practice and better enforcement of (often existing) local regulation.

Measures prohibiting certain activities or work methods, such as dredging, may be shown to be disproportionately costly particularly when considered in the context of the wider strategy.

In addition to the financial cost of implementing measures and as an addition to the consideration of local acceptability (Step 6), the socio-economic aspects should be addressed as these measures may pose restrictions to particular sectors. The SEA process when applied to the RBMPs should adequately address these costs and / or potential implications.

Similar to Step 6, if the identified measures are disproportionately expensive alternative measures should be assessed.

## **Step 8. Evaluation**

Supplementary measures will need to be evaluated on a local basis and any 'physical actions' would be subject to evaluation under existing development and regulatory mechanisms (SEA, EIA, licensing, planning) as relevant. Evaluation of all proposed measures should include strategic and cumulative appraisal to ensure that correcting one issue does not significantly affect other elements of the water body in question, as well as neighbouring water bodies. The River Basin Management Plans and associated SEAs should consider the strategic value of proposed measures.

## 10.5 Overall Conclusions

Within the existing legislative framework concerning TraC waters, morphology can be adequately assessed at a project or strategic level. However, it is concluded that currently there is not adequate scope for morphology to be highlighted as a potentially significant environmental aspect or interaction i.e. for morphology to act as a 'trigger' for further environmental assessment.

Where good and high status exist there is a priority to maintain these through the control of existing operations and future development. The Marine Morphology Study and TraC-MImAS tool can help determine the available capacity of the water bodies to further morphological change, and support the control of proposals within the existing legislative structure to prevent deterioration of status. Morphology can be affected on a wider spatial scale than Local Authority and RMBP or even national boundaries, and will therefore benefit from Integrated Coastal Zone Management and effective assessment of strategic and cumulative effects to ensure preservation of status.

Where there are existing pressures causing a water body to be at risk or reaching its required morphological status, restoration may be required. Restoration measures should be compared against current good practice and against technical feasibility and excessive costs. Once selected, the measures should be assessed through the current legislative mechanisms, which should now include morphological assessment.

The appropriate consideration of the recommendations relating to existing and new basic and supplementary measures, as summarised in Section 10.4, is fundamental to the effective application of the methods recommended for water body prioritisation and identification of measures (Figures 10.2 and 10.3).

In addition to the requirement for a structured legislative framework for TraC waters, Section 10.5.1 summarises the information required of these methods (Figures 10.2 and 10.3) to determine and achieve their objective of prioritisation. In summary, additional monitoring and appraisal of the pressures, as outlined in Chapters 9 and 3 respectively, should be undertaken to develop adequate baseline information on the morphology of TraC water bodies as well as evidence-based thresholds for the consideration of risk (refinement of MCLs).

With regard to the consideration of cumulative impacts, sectoral guidance such as that provided by the NRA for road construction projects in Ireland would be of significant benefit to the appropriate assessment and sustainable management of TraC water bodies. The SEA directive and the RBMPs should provide for such consideration of plans, programmes and their cumulative impacts.