

## 11 RECOMMENDED REGULATORY DECISION SUPPORT METHODOLOGY FOR FUTURE USE

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The purpose of this chapter is to outline how the deliverables of the Marine Morphology PoMS Study can assist the regulation of future physical modifications of Ireland's TraC waters with the aim of achieving WFD objectives. Following on from Chapter 10, the existing regulatory framework of relevance to estuarine and coastal modifications is summarised. Section 11.2 of this chapter then describes how the Marine Morphology Study can support the regulatory process, by firstly summarising the key elements of this study, then recommending the relevant stages at which the Marine Morphology Study and TraC-MImAS can compliment this system. Following a review of the relevant stages, a summary is provided of recommendations as to how these stages can be supplemented to support the regulation of alterations to morphology. Using an example of a harbour development proposal for Inner Bantry Harbour; the existing regulatory system currently applicable to such a development, including that required by the WFD, is outlined to demonstrate how the findings of this study can contribute.

Appendix 11-1 summarises the proposed measures identified within Chapters 10 and 11 as relevant for marine morphology within the template required for reporting to the National PoMS Co-ordination Group

For the purpose of this chapter, those environmentally sensitive areas likely to be affected by proposed developments are referred to collectively as 'sites of conservation sensitivity'.

### 11.1 Introduction

## 11.1 Introduction

Coastal developments in Ireland are currently governed by the DEHLG, Local Authorities, DAFF, and the DCENR.

The Engineering Division of DAFF (formally DCMNR) assesses the potential environmental impacts of relevant proposals, and licences are processed by the Marine Licence Vetting Committee (MLVC) (within DAFF). DAFF is also currently responsible for coastal protection and the design of schemes proposed by private interests or local authorities is examined by Department engineers. It is important to note that, as summarised in Section 10.2.1 various responsibilities are currently being transferred to DEHLG.

For the purpose of this chapter, the various regulatory bodies for which guidance and approval are required for estuarine and coastal developments are referred to collectively as 'consent authorities'.

### 11.1.1 Planning and Environmental Impact Assessment

The current planning system within Ireland is based on local planning authorities, consisting of County Councils, City Councils, Borough Councils and Town Councils, all of which are responsible for granting planning permission in the area to which they relate. An Bord Pleanála considers any appeals of planning decisions made by local planning authorities and as of 2001 is responsible for assessing and determining major local authority infrastructural developments.

The planning laws in Ireland consist of the Planning and Development Acts 2000 to 2006, and the Planning and Development Regulations 2001 to 2007. DEHLG provides the legislative framework and policy guidance for Ireland's planning system. Subject to the scale of a proposed project, an application for planning is accompanied by an EIS.

Where a development is proposed to be carried out by a local authority that is also the planning authority, planning applications and any EIS prepared by the local authority must be submitted to An Bord Pleanála for approval. Other parties seeking planning permission within the local authority jurisdiction apply to the relevant local authority. However, in certain circumstances, in accordance with the Planning and Development Regulations 2006, developers of proposed infrastructure are no longer obliged to secure

planning permission from local authorities before going to An Bord Pleanála. These exceptions are for strategic infrastructure development which can generally be described as development which is of strategic economic or social importance to the State or a region. It also includes development which will contribute significantly to the fulfilment of any of the objectives of the National Spatial Strategy or any regional planning guidelines for an area, or which would have significant effects on the area of more than one planning authority.

The Foreshore Acts, 1933 to 1998, require a lease or licence to be obtained from the Minister at DAFF for undertaking any works or placing structures or material on, or for the occupation of, or removal of material from, State-owned foreshore. The consent of the Minister is also required for development on privately owned foreshore. The foreshore is defined in the Foreshore Act 1933 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'*, and includes the *'land between the line of high water of ordinary or medium tides and land within the functional area of the planning authority concerned that adjoins the first-mentioned land'* (Planning and Development Act 2000).

The General Guidance Notes issued by DAFF for the Foreshore Acts 1933 – 2003 urge applicants for a lease or licence to *'consult the Department well in advance of finalising their proposals'*.

Developments on the foreshore may require planning permission in addition to the appropriate consent under the Foreshore Acts, and in such cases applicants are required to consult initially with the local planning authority. For foreshore developments for, on behalf of, or in partnership with a local authority where an EIS is required, applications should be made to An Bord Pleanála for approval of the proposed development (Part XV, Planning and Development Act 2000).

Similarly, in relation to dumping at sea permits, DAFF advises that prior to the submission of an application the applicant should consult with all relevant parties, particularly those likely to be affected by the project (e.g. fishermen, fish farmers, anglers, conservationists). These consultations, when carried out at an early stage in the planning of the project, *'can identify potential conflicts with other users, which may be overcome by modification of the project'* (Cronin et al, 2006) (e.g. changing the location of the dump site, or dumping operations only at specified times of the year). Prior to the

approval of the disposal of dredged material at sea, the Marine Institute may request further assessment of a proposal.

The EU Environmental Impact Assessment Directive (85/337/EEC as amended by 97/11/EC and 2003/35/EC) requires that certain developments be assessed for likely environmental effects before planning permission can be granted. For such developments, planning applications must be submitted with an EIS. Projects for which EIA is mandatory are listed in Annex I of the EIA Directive and those for which an EIA may be required are outlined in Annex II. In the case of Annex II projects, the EIA Directive allows Member States to choose to apply thresholds or use case by case examination, or a combination of both. Ireland transposed Annex II by setting mandatory thresholds for each of the project classes.

In 2002 the EPA published 'Guidelines for the Information to be contained in an Environmental Impact Statement'. These guidelines have a statutory basis and must be regarded by those preparing and evaluating EISs. It is unclear at present if these guidelines will be updated to reflect various elements of the WFD requirements. For example, 'Morphology' may be added to the topics specified in the EIS Regulations and EPA Guidelines. These topics are currently defined as follows:

- Human beings
- Fauna and flora
- Soil
- Water
- Air
- Climatic factors
- Landscape
- Material assets
- Inter-Relationship between the above factors

The EIA requirements under Irish planning legislation have been consolidated into Part X of the Planning and Development Act 2000, Part 10 of the Planning and Development Regulations 2001, and Schedule 5 of the Planning and Development Regulations 2001 (amended by the Planning and Development Regulations, 2005), the last of which specifies the developments and thresholds for which an EIA is required. Projects which do not exceed a specified value, area or other limit are termed 'sub-threshold' developments. Article 103 of the Planning and Development Regulations 2001 requires, for those developments that fall below the relevant EIA thresholds (sub-threshold

developments) and/or are located in or on sites of conservation sensitivity, that a planning authority must request an EIS where it considers that the proposed development is likely to have significant environmental effects. The criteria governing the need for sub-threshold EIA are set out in the Third Schedule to the European Communities (EIA) (Amendment) Regulations 1999 and in Schedule 7 to the Planning and Development Regulations 2001.

Article 179 of the Planning and Development Act, 2000, specifies a procedure to be applied to certain prescribed developments that do not require EIA. These are prescribed in Part 8 of the P & D Regulations, 2001 and relate to projects by, on behalf of, or in partnership with Local Authorities.

Where there are no clear requirements for an EIA under the Regulations, the EPA (2002) advise that where *“reasonable concerns exist that a single or very limited number of environmental topics may be adversely affected by a development proposal then an appropriate evaluation of the relevant topics may be carried out”*. This ‘appropriate evaluation’ should observe both the structure and methods of an EIS, and where possible *“pre-existing standardised terms for the significance of impacts”* should be used for this evaluation.

### 11.1.2 The WFD and Physical Modifications

The environmental objectives required of the WFD are prescribed in Article 4 of the Directive. 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 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”*.

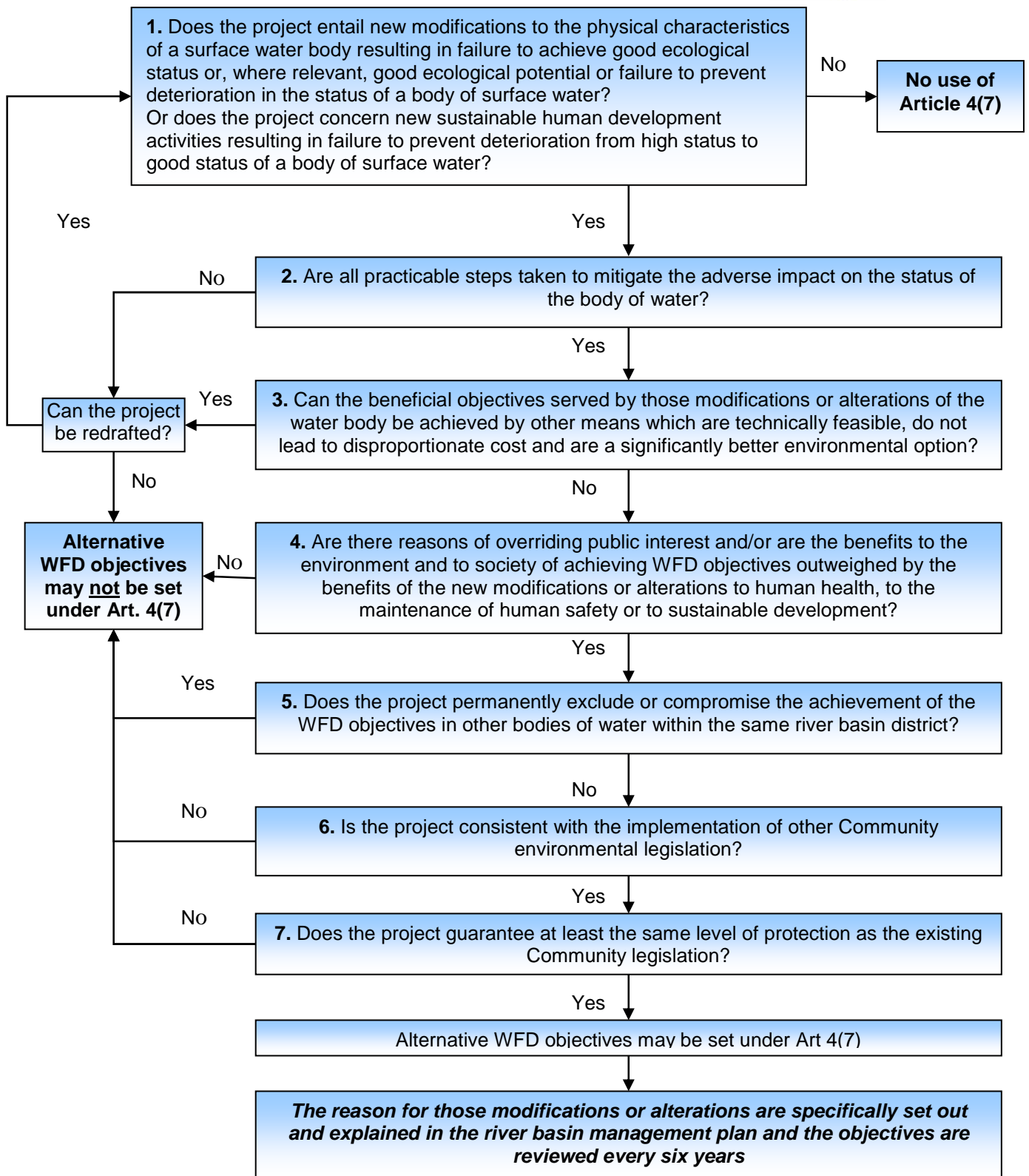
As introduced in Chapter 3 of the appended Literature Review (Appendix 2-1), a Common Implementation Strategy for the WFD was agreed by the EC Member States and Norway in May 2001 with the aim being to support Member States in addressing scientific, technical and practical challenges of the WFD. In December 2006 the European Water Directors endorsed a CIS policy document titled 'Exemptions to the Environmental Objectives under WFD Article 4.7', (CIS 2006(a)). This policy document notes that the **provisions of Article 4(7) are fully applicable now**. Therefore, if a proposal is found likely to threaten the achievement of the WFD objectives, the conditions of Article 4(7) will need to be demonstrated before permission is granted.

In contrast to the EIA Directive, the size of a development is not a trigger for Article 4(7). CIS (2006(a)) notes that for small projects not falling within the scope of the EIA Directive a *"generic approach can be used in order to reduce the assessment burden"*. For those projects that do fall within the scope of the EIA Directive the information provided by such an assessment will help determine if the conditions of Article 4 (7) are met. As noted in CIS 2006(a), and endorsed by this study; *"a joint procedure which correctly reflects the provision of EIA and WFD can be pragmatic and cost-effective"*.

As with all WFD exemptions, Article 4(7) does not apply when the provisions of Articles 4(8) and 4(9) are not fulfilled, i.e. the use of exemptions is permitted only when *"they guarantee at least the same level of protection as existing Community legislation and provided that they do not permanently exclude or compromise the achievement of the wider objectives of the WFD under Article 1 in other bodies of water within the same river basin district"* (CIS, 2006 (a)). **Article 4(7) cannot be used as an exemption from fulfilling the legal requirements of other Directives.**

Article 4(7) only applies to new modifications or activities, and not to existing activities. In the context of such activities, other derogations may apply.

It is suggested that prior to formal clarification from Government level on the applicability of Article 4(7), both developers and consent authorities should consider the guidance of the CIS when considering if Article 4(7) applies. Particular reference should be made to Figure 11.1 below, an extract from CIS (2006(a)), which outlines how the conditions under Article 4(7) may be applied to both new modifications and new sustainable human development. It is considered appropriate for developers to continue to apply the relevant environmental assessments (EIA process), answer the questions of Article 4(7), and be proactive by identifying any potentially significant issues in terms of WFD compliance early in the regulatory process.



**Figure 11.1: Step by step approach to the application of the conditions under Article 4(7) adapted from CIS, 2006(a) for relevance to TraC waters.**



The following points of relevance to this study were clarified by CIS (2006(a):

- Article 4(7) will not be applied to temporary effects, i.e. if the condition of a water body is adversely affected for only a short period of time and recovers within a short period of time without the need for restoration measures. No definition is provided for 'short period of time', and how this is being interpreted by Member States is unclear at present.
- The information provided by EIAs for those projects that fall under the EIA Directive should be used in helping determine if the conditions of Article 4(7) are met (specifically relating to the consideration of alternatives). It is assumed that for projects that do not fall under the scope of the EIA Directive an assessment procedure will be confirmed (potentially by the DEHLG following input from PoMS studies) to determine if the conditions of Article 4(7) are met.
- Article 4(7) cannot be used as an exemption from fulfilling the legal requirements of other Directives (e.g. in relation to a Natura 2000 site both the conditions set out in Article 4(7) of the WFD and those set out in Article 6 of the Habitats Directive would have to be met).

It has yet to be clarified if the concept of "over-riding public interest" has the same meaning as under the Habitats Directive. Concern has been expressed as to whether available case law on the Habitats Directive would be relevant for the interpretation of the WFD (as noted by CIS 2006(a), and the issue was raised at a PIANC (Permanent International Association of Navigation Congress) workshop in January 2007, titled 'Navigating the Water Framework Directive'). It was also suggested at this workshop that as the WFD does not require *imperative reasons* of overriding public interest (as with the Habitats Directive) the WFD regime appears to be less strict. It is considered unlikely that the imperative reasons of overriding public interest will permit a development which will have an adverse effect on the integrity of Natura 2000 sites to proceed.

Where the importance of the development is judged to outweigh the nature conservation importance of a site, the EU Birds and Habitats Directives require that compensatory habitat measures must be taken. However, the WFD does not specifically require the implementation of compensatory measures. CIS (2006a) suggests that reasons of '*overriding public interest*' in relation to the WFD refer to "*situations where plans or projects envisaged prove to be indispensable within the framework of*".



- *“Actions or policies aiming to protect fundamental value for citizens’ lives (health, safety, environment);*
- *Fundamental policies for the State and the society;*
- *Carrying our activities of an economic or social nature, fulfilling specific obligations of public services.”*

As indicated in Figure 11.1 (Step 4), if no ‘overriding public interest’ can be demonstrated, it must be shown that the benefits to the environment and to society of achieving the WFD objectives are outweighed by the benefits of the new modifications or alterations *“to human health, to the maintenance of human safety or to sustainable development”*.

## 11.2 Decision Support for the Regulation of Physical Modifications

A primary requirement of the Marine Morphology PoMS Study was to develop a decision support tool to allow *‘systematic assessment of future marine morphological impacts on ecological status ( /potential ) by taking account of the existing quality status and pressures on the water body’* (SWRBD, 2005). This objective has been achieved by the delivery of the following elements:

- **Pressures:** those pressures identified for the initial risk assessments were further characterised (Table 2.1, of Chapter 2) and spatially referenced to facilitate future assessment using GIS. The ‘footprint’ for each identified pressure was defined in addition to details regarding structure/activity type, scale of impact and frequency.
- **Registers of relevant EISs and marine models completed for TraC waters:** The detail provided can assist both the applicant and consent authority in the assessment of water body capacity.
- **Application of SEPA’s morphological impact assessment tool TraC-MImAS:** Following contribution to the trialling and further development of TraC-MImAS, this tool was applied to a selection of TraC water bodies to help further characterise the identified pressures and the potential impacts on morphological conditions. This, in turn, further characterised the risk posed by existing physical modifications to the achievement of the WFD objectives. The results of this assessment will be considered by the EPA during formal classification of water body status.
- **Good Practice Guide:** This guide can be used to advise applicants during pre-application discussion of the likely appropriate measures.

- **Future trends:** Chapter 8 summarises the findings of a strategic review undertaken to identify potential developments across a range of sectors/pressures which could potentially impact on the morphological condition of TraC waters. This summary can help authorities predict the likely future pressures that may contribute to the failure of the WFD objectives in addition to those being proposed at present.

Article 11 (3)(i) of the WFD specifies that 'basic measures' shall consist of '*measures to ensure that the hydromorphological conditions of the bodies of water are consistent with the achievement of the required ecological status*' [or good ecological potential]. Controls for this purpose are suggested as taking the form of '*a requirement for prior authorisation or registration based on general binding rules where such a requirement is not otherwise provided for under Community legislation*'.

Chapter 10 summarised the existing Community legislation of relevance to the protection of TraC waters and highlighted where there is specific consideration of morphology. The following sections lead on from this by setting out where this legislation is used within the existing regulatory process of future physical modifications, and recommend how this process can be supplemented by the deliverables of this study. 'General binding rules' are not set out; however, general 'screening' rules are provided through the use of TraC-MImAS. With regard to '*prior authorisation*' the importance of pre-application discussions between applicants and consent authorities is strongly emphasised

The aim of these discussions should be to minimise the number of applications received by consent authorities that are either rejected for being incomplete, require amendment or are refused for not meeting the relevant assessment criteria, whilst also creating an opportunity to promote Good Practice. At present the need for pre-application discussions is prescribed on a case-by-case basis, but formally required within the EIA process as well as for foreshore licence/lease and dumping at sea permit applications. The following sections make recommendations for the content of such discussions in relation to morphology and WFD compliance.

The use of TraC-MImAS at this level will help provide for fair and consistent regulation, i.e. the use of a defined screening tool at an early stage of any proposal will highlight any potentially significant issues for which an applicant can bring forward supporting information for site-specific cases.

### **11.2.1 Regulatory Process for the Authorisation of Developments consisting of Physical Modifications**

Figure 11.2 below summarises the existing regulatory process concerning physical modifications and recommends the stages at which the deliverables of this study can supplement this process at a national level.

In the development of TraC-MImAS, SEPA envisaged that this tool would be applied within a two-stage regulatory screening process. Stage 1 would be a preliminary risk assessment using a defined area, i.e. applying MImAS for a local-scale assessment. This would be used to identify low risk proposals that do not threaten ecological status. Stage 2 would then assess if the water body could be threatened. A similar staged regulatory process is outlined here. However, the use of local-scale assessments is not recommended at present in Ireland. To ensure consistent national application of any regulatory process, generic rules should apply to all assessments. Therefore, if local-scale assessments were to be used, the same assessment area would need to be applied in all water bodies, of all shapes. Various options were investigated through the UK-TAG Technical Panel - however, further research is required before the defined area for such an assessment can be justified. Section 11.4.2 of this chapter discusses this issue further.

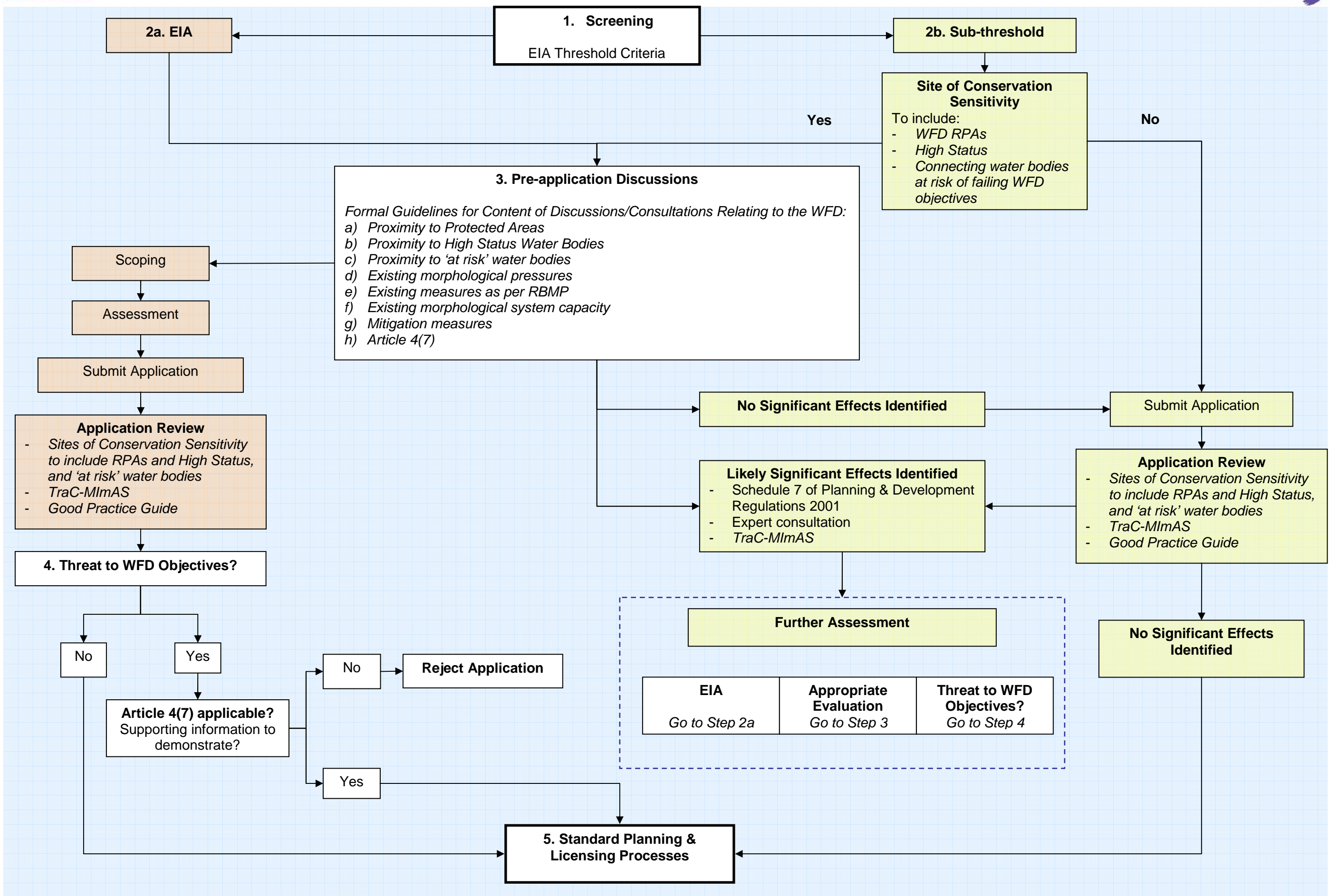


Figure 11.2: Summary of Existing Regulatory Process & Potential Improvements Regarding Coastal Morphological Pressures

### 11.2.2 Screening

As an initial stage to any project the developer will undertake 'screening' to determine whether or not the preparation of an EIS is required. This will initially involve a review of the mandatory and discretionary provisions set out in Irish legislation. As noted above, Schedule 5 of the Planning and Development Regulations 2001 provides the thresholds or sizes of certain classes of projects for which an EIS must be prepared, and those discretionary triggers that are associated with any sub-threshold developments.

It is considered that at this early stage there is a potential gap in the existing regulatory process regarding physical alterations. A sub-threshold development which does not fall in or on a site of conservation sensitivity can potentially fall 'out of the loop' of structured environmental assessment until the receipt of this application by the consent authority. The EPA advises that where projects pose a risk to such areas and are close to the mandatory thresholds developers should '*consult with the relevant competent authority regarding the possible needs for an EIS*' (EPA, 2002). Also, as referred to in Section 11.1.1 above, where possible, '*pre-existing standardised terms for the significance of impacts*' are advised for the '*appropriate evaluation*' of sub-threshold developments.

Pre-existing standardised terms may include reference to the RBMPs, specifically the status of water bodies, objectives set, and existing programmes of measures. However, as there are currently no specific references to this in national guidance; appropriate consultation regarding morphological alterations may not be triggered for sub-threshold developments until the formal application is reviewed by the consent authority.

With regard to dumping at sea applications; this initial screening stage is undertaken by the Marine Institute (Phase 1). The Marine Institute's 3-phased approach for assessing sediments is clearly outlined in 'Guidelines for the Assessment of Dredge Material for Disposal in Irish Waters' (2006), details of which should be reviewed by a developer prior to submission to the Coastal Zone Management Division.

Based on the above, the following recommendations are made regarding future screening of TraC physical modifications and the potential threats to the achievement of the WFD objectives:

- Specific reference should be made within National EIS Guidance for consideration of RBMPs, and its associated objectives and programmes of measures

- An addition should be made to the EIA Regulations of the Protected Areas provided in Annex IV of the WFD as a trigger for the assessment of significant environmental effects for sub-threshold developments.
- An addition should be made to the EIA Regulations for High Status water bodies as a trigger for the assessment of significant environmental effects for sub-threshold developments.

### 11.2.3 Pre-application Discussions

The aim of these discussions should be to minimise the number of applications received by consent authorities that are either rejected for being incomplete, require amendment or are refused for not meeting the relevant assessment criteria; whilst also creating an opportunity to promote Good Practice.

Pre-application discussions can involve various parties depending of the characteristics of the proposal, and for the purpose of this report include information exchange via consultation letters. As noted above, following receipt of both planning and foreshore applications for sub-threshold developments a consent authority may determine that the proposal is likely to have significant effects on the environment and therefore request that an EIS be prepared. Screening and pre-application discussions are fundamental in determining if an EIS is required prior to the submission of formal applications, and will be of increased significance when reviewing the new requirements of the WFD in relation to morphology.

Using the findings of the screening assessment, it is considered that the following aspects should be included in pre-application discussions to help identify any potentially significant impacts of the proposal to the existing morphological condition of the relevant water body(ies). The outputs from pre-application discussions should help regulators determine if more detailed regulatory assessments will be required, and if deteriorations in status will require management by considering an exemption on the basis of benefits to human health, human safety or sustainable development (Article 4 (7)).

- a) Proximity of proposal to Protected Areas (Natura 2000 network and WFD Registered Protected Areas).
- b) Proximity of proposal to High Status water bodies.
- c) Proximity of proposal to water bodies at risk of failing the WFD objectives (e.g. water bodies below GES, SAC classified as GES but requiring High Status for Favourable Conservation Status).



- d) Existing pressures on morphological condition.
  - Pressure footprints have been identified and digitised where possible by this study for all Irish TraC water bodies.
- e) Existing measures for the relevant water body(ies): the programme of measures specified in the current RBMP will be available to both developer and consent authority for discussion.
- f) Existing morphological 'system capacity' of the relevant water body(ies) and likely threat to WFD objectives.
  - The existing system capacity of the water body(ies) can be estimated by the consent authority by applying TraC-MImAS as outlined in Chapter 5 of this report.
  - The results of TraC-MImAS will provide an indication of the remaining capacity of the water body(ies) to absorb morphological alterations without threatening the WFD objectives.
  - The likely significant pressure(s) can be screened by using TraC-MImAS.
  - It is at this stage that the consent authority may highlight the benefits of an applicant submitting GIS compatible data with the formal application - this will assist the initial assessment of the water body(ies) as well as contributing to the maintenance of the decision support framework.
- g) Mitigation measures.
  - The Good Practice Guide provided in Chapter 7 of this report can be used to facilitate discussions regarding appropriate mitigation measures.
  - Following the indication of the most significant pressures, the requirement of measures can be focused.
- h) Applicability of the WFD Article 4(7).
  - Based on the indicative results of TraC-MImAS; the potential applicability of Article 4(7) can be considered where relevant, i.e. if the proposal is indicating a threat to the WFD objectives due to physical modifications, or new sustainable human development activities.
  - The scope of information required to meet the conditions of this article can be reviewed to ensure that, if relevant, the applicant can adequately demonstrate achievement of these conditions in their formal application.

It is at this stage of the regulatory process that TraC-MImAS is considered to be of most use to the consent authorities in advising developers of their compliance needs whilst setting the scene for the next phase - Scoping. In consultation with the tool 'user', the potentially significant aspects of the proposal and receiving environment can be identified so as to



determine the requirements for studies to assess these potential impacts, as well as identifying possible alternatives that could be addressed.

It should be demonstrated at this stage if it is considered likely that the development requires a full statutory EIS, and / or affects on a Protected Area [EU (Habitats and Birds Directives, WFD) and International].

Based on the above, the following recommendation is made regarding future consultations for TraC physical modifications and the potential threats to the achievement of the WFD objectives:

- For proposals including the pressures identified by this study, it is recommended that a formal request from the consent authority is made for information relating to the topics outlined in a) – h) above from the applicant would be fundamental to the success of the pre-application discussions.

#### 11.2.4 Scoping

Scoping is the process through which the key issues specific to the proposed project or receiving environment that are likely to be of significance during the Environmental Impact Assessment (EIA), are identified. Scoping is a general requirement of the statutory EIA process, but should also be applied to sub-threshold developments, including those requiring foreshore licence/lease and/or dumping at sea permit, where significant environmental effects are considered likely. Screening and pre-application discussions with the consent authority (and other relevant bodies) are fundamental to the success of this stage of assessment by the applicant.

#### 11.2.5 Receipt of Application

Depending on the scale of development, the consent authority can receive applications for planning permission, a foreshore licence/lease, dumping at sea permit and/or waste licence (e.g. for the reuse of dredge material for the purpose of reclamation). In accordance with the details outlined in Section 11.1.1 above, these applications may be accompanied by an EIS or other non-statutory Environmental Report (following an 'appropriate evaluation').

Following on from the pre-application discussions, the scope of the environmental report should adequately consider morphology where relevant. For the purpose of assessing

compliance with the WFD in relation to morphology the following can be considered when reviewing submitted applications:

- a) Potential risk to a Protected Area.
- b) Likely threat to WFD objectives (TraC-MImAS).
- c) Sufficient consideration of mitigation measures (Good Practice).

### Protected Areas

The environmental report submitted should specify where proposed activities might threaten conservation interests, and any consultation responses relating to these interests should be provided with the application. The RBMP relevant to the RBD will identify the status required of any Protected Areas and outline the relevant objectives and programme of measures. It should also include *'maps indicating the location of each protected area and a description of the Community, national or local legislation under which they have been designated'* (Annex IV of the WFD).

### Potential Threats to WFD Objectives

On receipt of detailed design information from the applicant, TraC-MImAS can be used to combine the pressure footprints envisaged for the proposal with those of existing physical modifications in order to assess the potential cumulative impact on the morphology of the water body(ies).

On publication of the RBMPs, each water body will be classified as representing High, Good, Moderate, Poor, or Bad status. If the assessment does not indicate that the impacts of the proposed physical modifications may result in a deterioration of the existing status class, and the accompanying environmental report provides sufficient evidence of this, then the standard planning and licensing processes may apply. However, if a risk to status class is demonstrated, the conditions of Article 4 (7) of the WFD should be reviewed to determine if its provisions are applicable.

### Mitigation Measures

Accompanying environmental reports will outline those measures considered appropriate to the proposal. In addition to the expertise available from the relevant authorities, the marine morphology Good Practice Guide can assist a review of the likely effectiveness of the proposed measures. For those developments posing a risk to status class, the application should present evidence demonstrating:

- that all practicable measures to mitigate adverse impact on status were investigated;

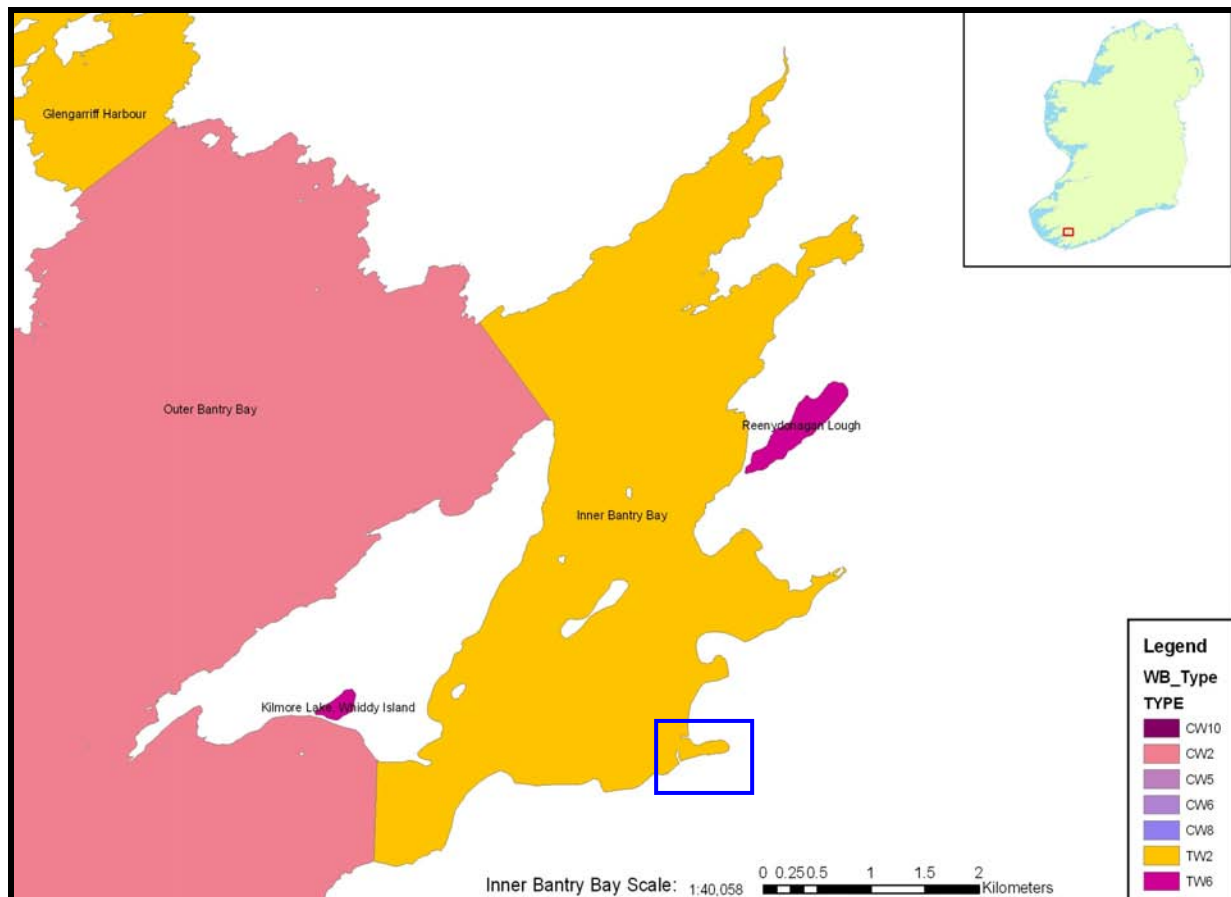
- the reasons for any modifications/alterations being regarded as of overriding public interest; and
- that alternative means of meeting the objectives of the development have been identified and investigated to ensure that they do not present significantly better environmental options (subject to technical and economic considerations).

### 11.3 Worked Example: Inner Bantry Bay Proposed Harbour Development

This section uses an example of a proposed harbour development for Inner Bantry Harbour to demonstrate how the findings of the Marine Morphology Study can contribute to the existing regulatory system currently applicable to such a development, including that required of the WFD.

The details of the Inner Bantry Bay Proposed Harbour Development outlined in this section are sourced from development proposals prepared by RPS Consulting Engineers on behalf of Murnane and O'Shea Ltd (RPS, June 2006). This proposal was published by the Bantry Bay Commissioners as part of a tender request for harbour development. The purpose of this proposal document was to review past proposals for this harbour and prepare renewed proposals that would be made available to interested parties. This proposal was not intended to provide detailed plans of proposed works, but outline the concept elements. The areal extents of proposed structures and activities considered in the assessment below are only indicative of the latest proposal for the harbour. In addition to quoted pressure extents, many pressure footprints have been estimated using details indicated within the proposal document and accompanying plans. The Bantry Inner Harbour Development proposal was used only as a basis for this example and does not purport to accurately represent the proposal document.

Figure 11.3 shows the location of Inner Bantry Harbour within the WFD water body 'Inner Bantry Bay'. Currently Bantry Inner Harbour facilitates commercial fishing and aquaculture activity as well as providing an anchorage for small cruise liners with associated facilities. The harbour itself currently contains 2 piers in the outer area; a commercial pier to the south, and the (former) railway pier to the north of the harbour.



**Figure 11.3: Location map – Inner Bantry Bay and Inner Bantry Harbour (outlined by the blue square)**

The overall concept for the development of Inner Bantry Harbour included the proposals for the addition of public amenity areas (reclamation of approximately 0.162km<sup>2</sup> adjacent to the railway pier), pier extension and access (addition of approximately 700m<sup>2</sup> to the commercial pier), contamination treatment/removal, reinstatement of the Old Docks, and marina (188 berth) and onshore facilities.

Many harbour activities depend on hydromorphological modification. Potential impacts from such modifications can include:

- the physical removal of habitats or species;
- changes to physical processes (erosion, accretion and sediment transport); and
- barriers to movement of species or the loss of connectivity between habitat sites (e.g. due to impoundment or reclamation). (CIS, 2006(b)).

### 11.3.1 Screening

The proposed development **exceeds** the EIA threshold prescribed by the Planning and Development Regulations 2001, Schedule 5, Part 2. Those of relevance to such a development are as follows:

- *New or extended harbours and port installations including fishing harbours, not included in Part 1 of this Schedule, where the area, or additional area, of water enclosed would be 20 hectares or more, or which would involve the reclamation of 5 hectares or more of land, or which would involve the construction of additional quays exceeding 500 metres in length.*
- *Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dikes, jetties and other sea defence works, where the length of coastline on which works would take place would exceed 1 kilometre but excluding the maintenance and reconstruction of such works or works required for emergency purposes.*
- *Sea water marinas where the number of berths would exceed 300 and fresh water marinas where the number of berths would exceed 100*

Based on the above, a Statutory EIA would be required for such a development.

The water body of Inner Bantry Bay is not part of any SAC, SPA or NHA, however it is designated as a Registered Protected Area for the protection of economically significant aquatic species (PA3\_0003) in accordance with Article 6 and Annex IV of the WFD.

It can be considered at this stage that the developer will be required to apply for the following licences/permits for such a proposal:

- Planning permission, to include an EIS.
- A licence and lease under the Foreshore Acts 1933 to 1998.
- A permit under the Dumping at Sea 1996 (amended 2004) will be required for disposal of dredged material. Following review by the Marine Institute a sampling and analysis plan may be advised.
- A waste licence from the EPA or permit from Cork County Council may be required for the reuse of dredged material and /or imported material for the purpose of reclamation.

Pre-application discussions may include Cork County Council, DAFF, the Marine Institute, Bord Iascaigh Mhara, South West Regional Fisheries Board, the EPA, as well as local fishery interests.

### 11.3.2 Pre-application Discussion

As noted in Section 11.2.3 above, pre-application discussions can involve various parties depending of the characteristics of the proposal, and include information exchange via consultation letters. Screening and pre-application discussions are fundamental in determining if an EIS is required or significant environmental effects are likely prior to the submission of formal applications, and will be of increased significance when reviewing the new requirements of the WFD in relation to morphology.

- a) Proximity of proposal to Protected Areas (Natura 2000 network and WFD Registered Protected Areas)
  - i. Register of Protected Areas for the protection of economically significant aquatic species (PA3\_0003)
  - ii. Natural Heritage Area - Cusroe, Whiddy Island (site code 000110)
  - iii. National online interactive maps available via the NPWS as well as the RBMPs will assist in the identification of any new RPAs connected with Inner Bantry Bay.
- b) Proximity of proposal to High Status water bodies
  - i. Further characterisation of the risk associated with morphological alterations indicates that Inner Bantry Bay has potential to achieve HES, contributing to the achievement of overall high surface water status. The nearest TraC water bodies that also have the potential to achieve HES are Glengariff Harbour and Adrigole Harbour. An important point to raise in these discussions is that the extent of existing pressures within Glengariff Harbour currently impose some risk to the achievement of this status class, suggesting that only minor additional pressures on this water body may result in deterioration to GES.
  - ii. National online interactive maps available via the EPA and RBMPs will assist in the identification of all surface water bodies connected with Inner Bantry Bay
- c) Proximity of proposal to water bodies deemed at risk of failing the WFD objectives (e.g. water bodies below GES, Natura 2000 sites classified as GES but requiring High Status for Favourable Conservation Status)
  - i. Based on the results of the Marine Morphology Study, those water bodies connected with Inner Bantry Bay are not currently at risk of failing GES.
- d) Existing pressures on morphological condition

- i. Pressure footprints were digitised where possible for all TraC water bodies, and should be available for interrogation by the consent authority.
- ii. A summary of the existing pressure footprints for Inner Bantry Bay are outlined in the Water Body Summary Sheet 'SWRBD – 11' (Appendix 6-4) and Table 11.1, and illustrated in Figures 11.4 and 11.5 below.



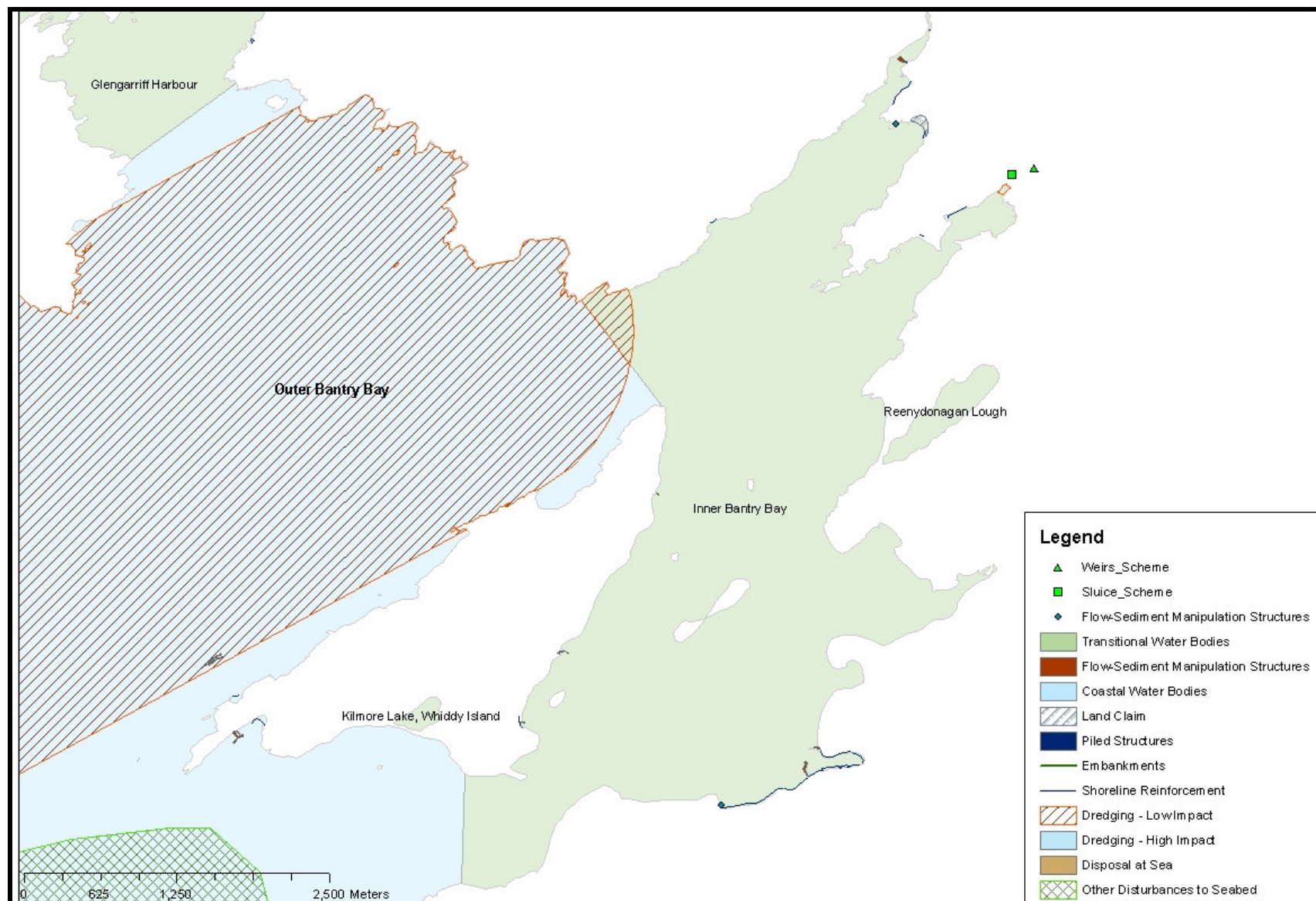


Figure 11.4: Existing Physical Modifications identified for Inner Bantry Bay, SWRBD

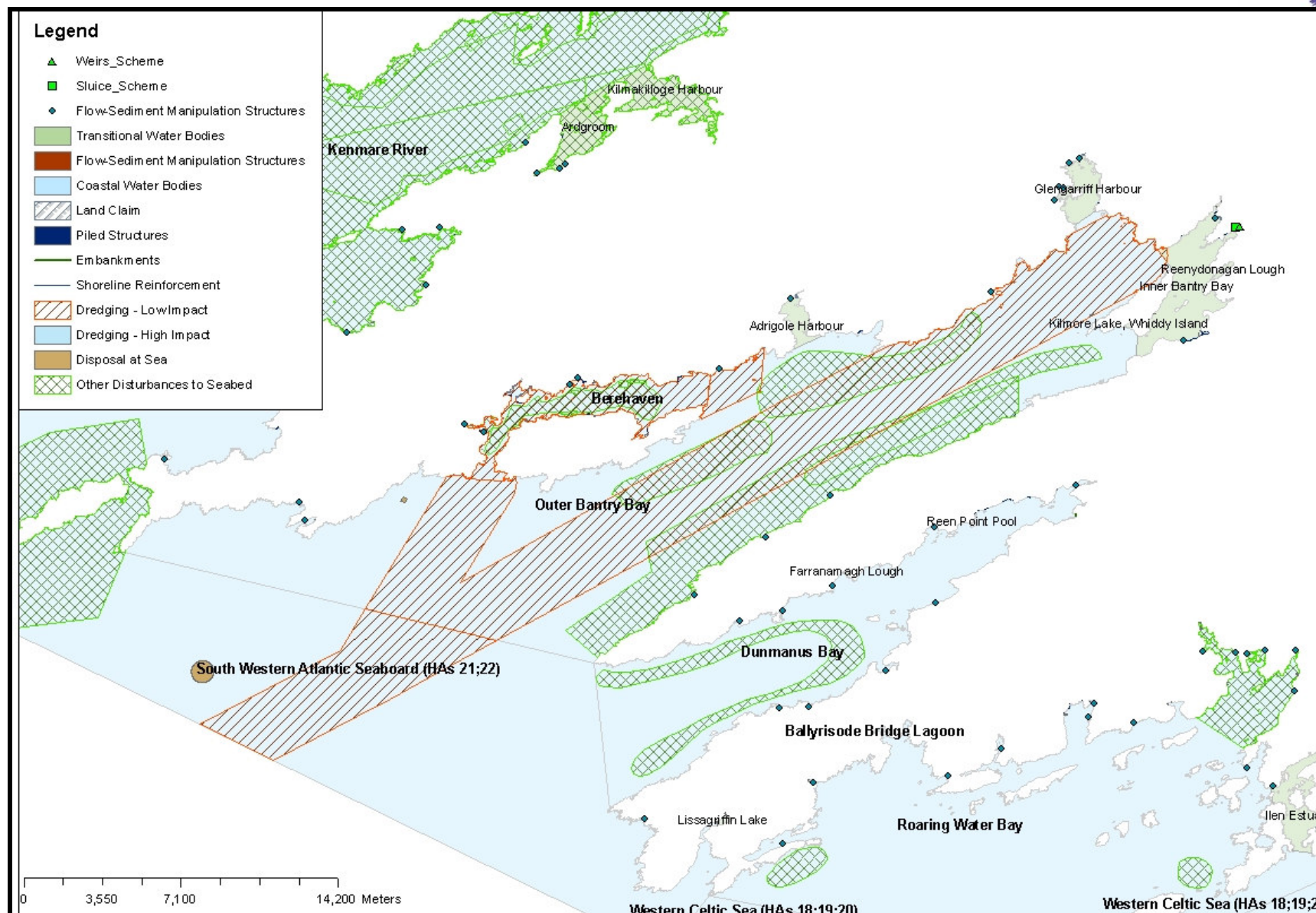


Figure 11.5: Existing Physical Modifications identified for Inner Bantry Bay and connected TraC water bodies, SWRBD

**Table 11.1: Summary of existing pressure footprints identified for Inner Bantry Bay**

		Transitional	
Pressures		Meso - macro Tidal	
		Location of Activity	
		Intertidal	Subtidal
Land claim- High impact	Area (km <sup>2</sup> )	0.009776	
Land claim- Low impact	Area (km <sup>2</sup> )		
Dredging- High Impact	Area (km <sup>2</sup> )		
Dredging- Low impact	Area (km <sup>2</sup> )	0.013904	0.135384
Other disturbances to seabed	Area (km <sup>2</sup> )		
Sea disposal of dredgings	Area (km <sup>2</sup> )		
Structure to manipulate flow/sediment	Area (km <sup>2</sup> )	0.003966	0.001199
Structures with piled supports	Area (km <sup>2</sup> )	0.00039	0.000166
Shoreline reinforcement- High impact	Length (km)	2.435	0.039
Shoreline reinforcement- Low impact	Length (km)		
Flood defence embankment	Length (km)		
Tidal channel realignment- High Impact	Length (km)		
Tidal channel realignment- Low impact	Length (km)		
Impounding structure	Footprint rules apply		
Causeway	Length (km)		

- e) Existing programme of measures for the relevant water body(ies)
- The published RBMPs will outline the PoMS defined for Inner Bantry Bay on completion of all PoMS studies.
  - If confirmed to be of High Status, PoMS for this water body will focus primarily on the preservation of this status class.
- f) Existing morphological 'system capacity' of the relevant water body(ies) and likely threat to meeting WFD objectives
- TraC-MImAS can then be applied to the identified pressures footprints existing in Inner Bantry Bay to help inform the applicant of the current morphological condition of the water body, and therefore potential threats to the WFD objectives.
  - The extent of pressures within Inner Bantry Bay currently indicates the potential for the achievement of HES, as demonstrated in Table 11.2 below.

**Table 11.2: Existing system capacity estimated for Inner Bantry Bay**

TOTAL CAPACITY USED		
Hydrodynamics	1.4%	HIGH
Intertidal Zone	2.8%	HIGH
Subtidal Zone	0.3%	HIGH

iii. Details of the proposed pressure footprints associated with the development may be available for review at this stage of the process. Those works associated with the proposed Inner Bantry Harbour development and considered of relevance to the assessment of morphology are outlined below:

- Pier widening and extension.
  - To include the use of sheet piles and dredged material.
- Dredging: sufficient depth at low tide for passenger & commercial vessels.
  - To facilitate access to proposed pier extension and access works.
  - Proposed dredge depth level at the eastern end of the harbour is -2.0m Chart Datum, increasing to -3.0 Chart Datum at the western end and harbour entrance.
  - In addition to this 'capital' project, these navigational areas will require ongoing maintenance.
- Reclamation (public & amenity areas).
  - Rock breaking required in areas.
  - Dredged material (potentially contaminated) and/or imported clean fill to be used for reclamation of 3 areas; totalling to an estimated land claim footprint of 0.01619km<sup>2</sup>.
  - Impermeable barriers to consist of sheet piles, concrete retaining wall and armoured breakwater.
- Associated disposal of [contaminated] sediments: material may be used to supplement reclamation or disposed of outside this water body.

iv. A summary of the estimated pressure footprints associated with the Bantry Bay Inner Harbour Development proposal is tabulated below alongside those of the existing pressures identified for the Inner Bantry Bay water body (Table 11.3).



**Table 11.3: Summary of existing pressure footprints within Inner Bantry Bay and those proposed for the Inner Harbour**

Pressures	Existing Footprints m <sup>2</sup>		Proposed Footprints m <sup>2</sup>		Total Footprints m <sup>2</sup>		Total Footprints Km <sup>2</sup>		Comments
	Intertidal Zone	Subtidal Zone	Intertidal Zone	Subtidal Zone	Intertidal Zone	Subtidal Zone	Intertidal Zone	Subtidal Zone	
Flow-Sediment Manipulation Structures - Total	3966	1199	700	0	4666	1199	<i>0.0047</i>	<i>0.0012</i>	Estimated from concept plans: 'extending pier head by 10m, and increase width by 4m along entire width'
Commercial Pier	1634	162	700	0	2334	162			
Railway Pier	497	0	0	0	497	0			
Other	1835	1037	0	0	1835	1037			
Dredge (Low Impact)	13904	135384	0	0	13904	135384	<i>0.0139</i>	<i>0.1354</i>	Estimated area of harbour outside that proposed for reclamation to be dredged (capital dredge proposal).
Dredge (High Impact)	0	0	31047	22084	31047	22084	<i>0.0310</i>	<i>0.0221</i>	
Shoreline Reinforcement (High Impact)	2435	39	-460	0	1975	39	<i>1.9750</i>	<i>0.039</i>	Reclaimed areas to include impermeable banks, therefore, the footprint of existing reinforcement should be removed to prevent double counting of pressures by TraC-MImAS.
Land Claim (High Impact)	9776	0	8096	8096	17872	8096	<i>0.0179</i>	<i>0.0081</i>	Proposed area estimated using concept plans. Footprint evenly split between tidal zones
Piled Structures	390	166	0	0	390	166	<i>0.00039</i>	<i>0.0002</i>	
Disposal	0	0	0	0	0	0	<i>0</i>	<i>0</i>	Site not specified for disposal

- v. Using the details for the proposed pressure footprints, TraC-MImAS can be applied to indicate the likely threat to the existing morphological conditions by estimating the water body's system capacity.
- Table 11.4 below shows the results of TraC-MImAS following the addition of the proposed pressure footprints to Inner Bantry Bay.

**Table 11.4: Estimated system capacity for Inner Bantry Bay with proposed harbour development**

TOTAL CAPACITY USED			
Hydrodynamics		1.3%	HIGH
Intertidal Zone		5.6%	GOOD
Subtidal Zone		0.5%	HIGH

- The estimated system capacity used following the increase of physical modifications indicates that these modifications **could potentially result in a deterioration of water body status**.
- The most significant pressures attributing to the potential deterioration are land claim and high impact dredging. Both of these pressures can alter local tidal flow patterns, sediment transport regime in addition to direct removal of habitat and biodiversity. Also, in addition to potential local impacts of a capital dredge scheme, the sensitivity of shellfish associated with the RPA to increases in suspended sediment levels, smothering etc are potentially significant pressures on water body status.
- On publication of the RBMPs, formal ecological classification results will assist further.

#### g) Mitigation measures

- In accordance with Article 4(1) of the WFD; necessary measures should be implemented to prevent the deterioration of the status of all surface water bodies (subject to Articles 4 (6) and (7), and without prejudice to (8)).
- Potential measures that could potentially reduce the impact of the proposed physical modifications (see Chapter 7) may include:
  - Reconsider location of reclamation:** monitoring results will help inform both applicant and authority of ecologically sensitive areas. Other than the RPA, no particularly sensitive areas have been identified in the Inner Bantry Harbour

- **Modify structure design:** the feasibility of open-piled structures may be considered for the proposed amenity area and pier improvements. Semi-permeable breakwaters proposed to shelter boats and pontoons could be investigated.
  - **Modify dredge methods:** the feasibility of dry-dredging the inner harbour could be investigated as well as seasonal and tidal timings for other dredge methods. If feasible, dry-dredging of the Inner Bantry Harbour would help minimise the potential impact on local shellfish. The construction of a bund reinforced with sheet piles extending between the existing commercial pier and the existing railway pier is recommended within the proposal (RPS, 2002) as a measure to minimise migration of the sediment plume into the Bay. It should be noted that Article 4(7) only applies to temporary deterioration if this is the '*result of circumstances of natural cause or force majeure*'.
  - **Management Frameworks:** As noted above, the navigational areas required for the harbour will require ongoing maintenance. A proactive approach to the imminent requirements of the WFD could include the development of maintenance dredging frameworks that can facilitate the management of sediment through the control of dredging operations.
  - **Disposal of dredged material:** Re-use of material within the development proposal is an option, however, in addition to morphological considerations; those relating to contaminated sediments will need to be addressed. Similarly with disposal outside this water body, contaminated sediments will require more stringent measures than those associated with conservation of morphological conditions. It is considered that, in the case of non-hazardous sediment, the disposal/relocation of sediment at sea is beneficial as it can continue to contribute to its natural role in the environment.
- iii. During the next stage of this process, the applicant should investigate the potential measures discussed, particularly those associated with land claim and high impact dredging.
- h) Applicability of the WFD Article 4(7)
- i. Making reference to the CIS Guidance (CIS 2006), and Figure 11.1 above, the consent authority may, if relevant, outline the requirements of the applicant to demonstrate the applicability of this derogation.
  - ii. On consideration of the measures outlined above, the potential impact of the proposed development may be significantly reduced; therefore supporting



documentation demonstrating the conditions of Article 4(7) is unlikely for such a development.

### **11.3.3 Receipt of Application**

TraC-MImAS may be applied again if the pressures footprints initially proposed are amended. For example, if permeable breakwaters and open-piled structures are proposed, these pressures could then be assessed as low impact shoreline reinforcement and piled structures in place of high impact shoreline reinforcement and land claim. However, it is important to note that TraC-MImAS does not currently account for the potential benefits of all mitigation measures (e.g. dredge methods or reclamation of less sensitive area). It is therefore recommended that, pending further development TraC-MImAS is of most benefit to the Screening and Pre-application regulatory process stages.

Following consideration of TraC-MImAS results, the formal status class, relevant objectives and PoMS outlined in the RBMP, as well as expert review of the risk to the WFD objectives can be confirmed. If the proposal continues to pose a risk to status class, the applicability of Article 4(7) should be investigated. The potential for the use of derogations is highlighted at the pre-application discussions. Therefore, any application should, where considered relevant, provide sufficient information to facilitate this review.

## **11.4 Further Development**

As outlined in the above sections, the deliverables of the Marine Morphology Study and current version of TraC-MImAS can help support Ireland's existing regulatory process for the assessment of WFD compliance relating to physical modifications. However, as highlighted in Chapters 3 and 5 there are opportunities to refine this process through improvement to both the base data and the assessment tool.

### **11.4.1 Base Data and TraC-MImAS**

The overall framework of TraC-MImAS is considered a valid basis for developing further research and development work to provide validation of the professional judgement values and/or assumptions applied in the tool. This is the long term intention of SEPA for TraC-MImAS, and work has already commenced for the Rivers-MImAS tool.

The development of TraC-MImAS was initiated by SEPA following the success of the River-MImAS tool as a regulatory aid in Scotland. River-MImAS has been developed within the database software, Oracle, and its application within Scottish water bodies is supported by a documented internal Regulation Method which defines the steps necessary to authorise an engineering activity, as well as an Operational Guide which provides SEPA staff with detailed information on the use of the rivers tool (similar to that provided in Chapter 5 for TraC-MImAS). This structured methodology aims to reduce the time required for expert judgement, by guiding staff towards screening out low risk proposals that are unlikely to threaten WFD objectives. This has yet to be duplicated for TraC waters. It is considered that further technical development of TraC-MImAS, in addition to confirmation of regulatory roles and responsibilities are required before such a formal regulatory procedure can be documented with confidence for use in Ireland. However, as research and development is continuing within SEPA, it is strongly recommended that Ireland continue liaisons with them during the refinement of TraC-MImAS as a regulatory tool.

The following is a summary of how this report can facilitate both the use and refinement of TraC-MImAS:

- Chapter 9 outlines how Irish monitoring programmes can help increase confidence in the underlying assumption of TraC-MImAS, i.e. an assessment of impacts on ecologically relevant features and processes (as defined in Table 5.6) can be used to protect morphology and ecology;
- Chapters 3 and 5 outline the methods and information required for the assessment of both existing and proposed developments using TraC-MImAS; and
- Chapter 5 also recommends potential improvements to each of the five TraC-MImAS modules, the most prominent being that of the Typology Module. Within TraC-MImAS, the sensitivity of both morphology and ecology is estimated based on the water body *type* - therefore, future development should focus on this module.

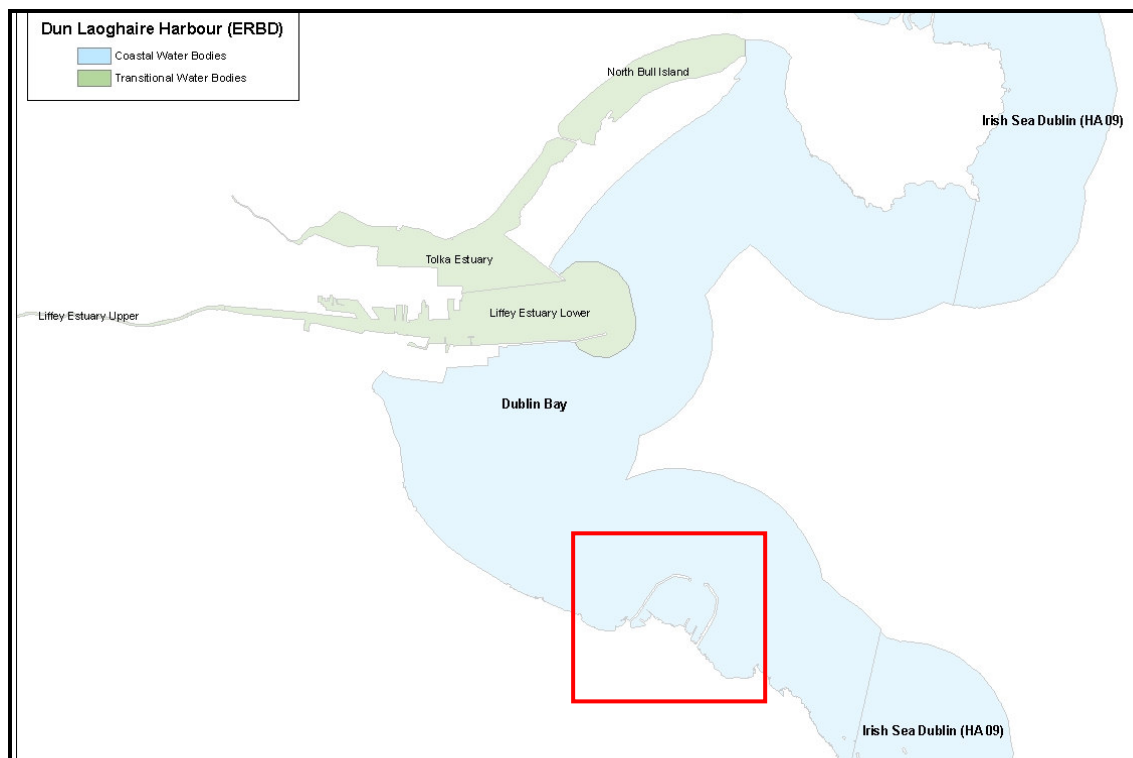
Further field trials, monitoring results, and professional judgement across Ireland and the UK will all benefit the refinement of TraC-MImAS; however, due to the nature of estuarine and coastal water bodies, TraC-MImAS or any similar tool developed has limited capabilities for the assessment of site specific conditions. Therefore, further development should be focused at refining this tool for its continued use in **supporting** regulation with the aim of formalising a national, non-sectoral, regulatory framework which TraC-MImAS can assist.

In addition to the benefits of screening coastal proposals, the use of TraC-MImAS in the regulatory process will encourage the use of GIS by applicants and therefore improve the

acquisition of national pressure footprints. However, this then raises the problem of data quality and scale. At present, WFD water bodies and their shorelines have been digitised at a scale of 1:50,000, whereas applicants are likely to submit proposal plans at larger scales. This will need to be considered when using TraC-MImAS to assess the potential impact of a proposal.

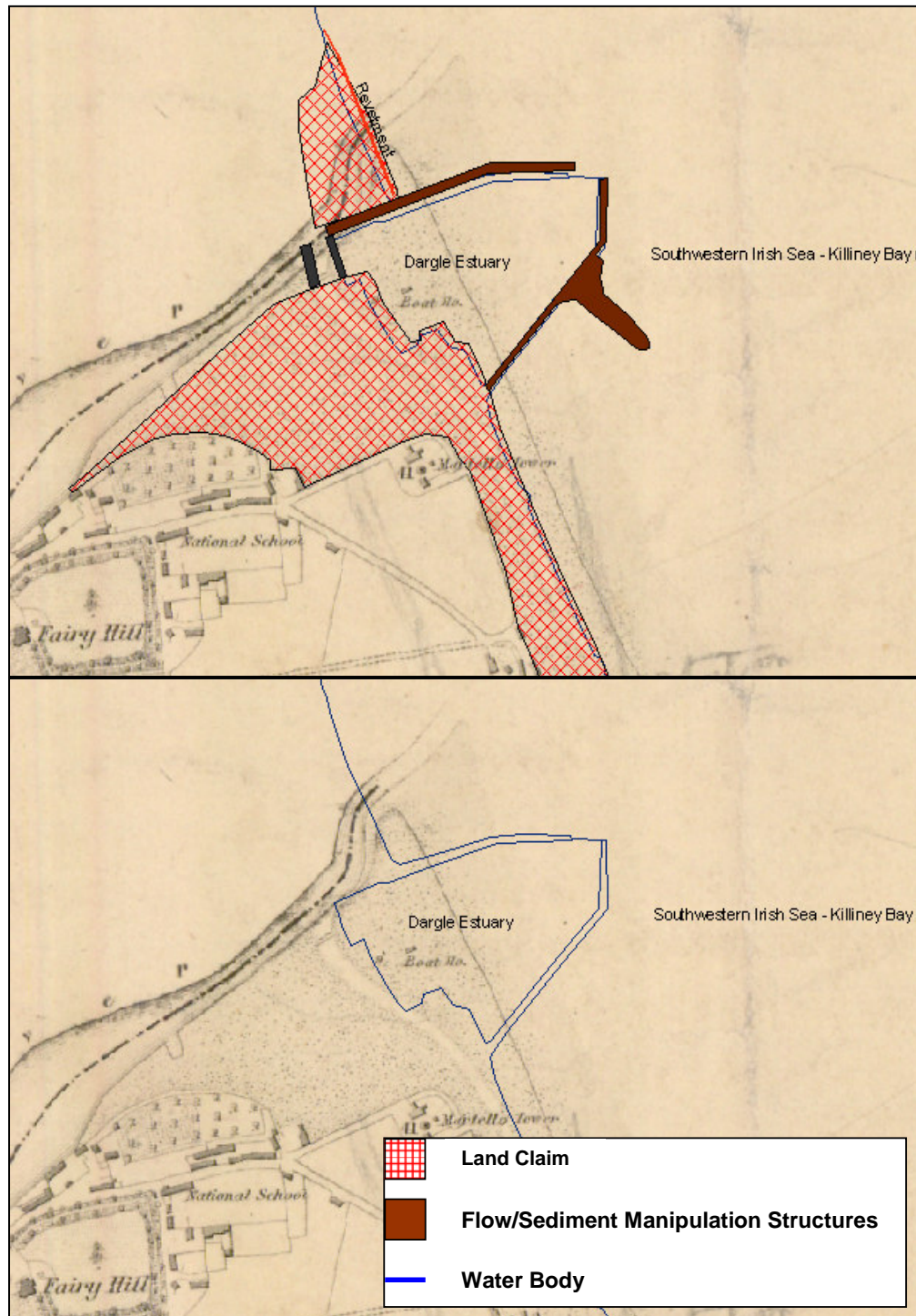
A significant component of TraC-MImAS is its reliance on the extent of a water body's area and shoreline length in estimating system capacity. Therefore, to ensure a good level of confidence in the use of TraC-MImAS for regulation, a high level of confidence is firstly required in water body areas as well as typology.

Chapters 3 and 6 highlighted some digitising errors relating to water body extents. These are minor errors that should be corrected on completion of all PoMS studies. However, of more relevance to the confidence in regulatory tools, it was identified that the delineation of various other water bodies may be questioned by an applicant during regulation. For example, Dun Laoghaire Harbour, an enclosed harbour within the 'Dublin Bay' water body (48 km<sup>2</sup>), is not designated as a separate HMWB and therefore will be required to achieve GES by 2015. Therefore, the impact of any changes in the area within the piers must not be such that it would cause the waters of 'Dublin Bay' to fall below good status. Water bodies delineated as 'heavily modified' are subject to the less stringent objective of GEP.



**Figure 11.6: Dun Laoghaire Harbour within the coastal water body Dublin Bay.**

The Dargle estuary provides another example. This water body was not designated as a provisional HMWB. However, historic maps show that this water body was created by land reclamation and the construction of flow and sediment manipulation structures, as shown in Figure 11.7 below.



**Figure 11.7: Dargle Estuary Transitional Water Body. Historic maps sourced from GSI**

### 11.4.2 Water Body Scaling and Single Activity Limits – Thresholds for Screening

As introduced in section 11.2.1, SEPA have investigated the use of local-scale assessments, which were aimed at

- screening out those proposals not considered to threaten WFD objectives within a defined local assessment area, and therefore unlikely to be of significance at water body scale; and
- identifying any proposals that may have a significant impact at local scale but perceived as having no significant impact if assessed within a large water body. For example, a proposal for a small harbour development in a sedimentary area of a large predominantly bedrock water body is unlikely to impact significantly on the water body as whole, but may adversely affect sensitive habitats dependent on the sedimentary conditions, therefore impacting on water body status.

Local-scale assessments have yet to be trialled across the UK and Ireland. Initial proposals included a defined square assessment area of 0.25km<sup>2</sup>, but further research has deemed this impractical due to the site specific nature of estuarine and coastal waters and their developments. In terms of sensitive habitats in the vicinity of a proposal, it is considered that the regulatory process outlined in Section 11.2 above will ensure the consideration of such areas without the use of defined assessment areas within a water body.

Within the UK-TAG work has commenced on the definition of ‘single activity limits’ for discrete morphological alterations which could be applied to water bodies of any size, with the exception of lagoons. An activity exceeding these limits would indicate a risk to High status. Formal results of this work have yet to be published as field trials will be required to further research these limits. The adoption of such limits will require a high level of confidence in their ability to trigger adverse impacts on morphology and ecology, and in the absence of extensive field trials and monitoring the draft activity limits currently proposed are not considered suitable for use in regulation in Ireland as yet. However, continued liaison with SEPA as well as contributing to this work to mimic studies in Ireland, can help define these limits for future use. In addition to the thresholds provided by the EIS Regulations, evidence-based activity limits would prove beneficial to the regulation of morphological alterations.



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