



# Natura Impact Statement

Slaney & Wexford Harbour

# Natura Impact Statement

For

## River Basin (12) Slaney & Wexford Harbour Flood Risk Management Plan

*Areas for Further Assessment included in the Plan:*

<i>Bealach Conglais</i>	<i>Baltinglass</i>
<i>Bun Clóidí</i>	<i>Bunclody</i>
<i>Inis Córthaidh</i>	<i>Enniscorthy</i>
<i>An Slab Thuaidh</i>	<i>North Slob</i>
<i>An Slab Theas</i>	<i>South Slob</i>
<i>Baile Loch Garman</i>	<i>Wexford</i>
<i>An Tulach</i>	<i>Tullow</i>

Flood Risk Management Plans prepared by the Office of Public Works 2018

*In accordance with*

*European Communities (Assessment and Management of Flood Risks) Regulations 2010 and 2015*

## Purpose of this Report

As part of the National Catchment-based Flood Risk Assessment & Management (CFRAM) programme, the Commissioners of Public Works have commissioned expert consultants to prepare Strategic Environmental Assessments, Appropriate Assessment Screening Reports and, where deemed necessary by the Commissioners of Public Works, Natura Impacts Assessments, associated with the national suite of Flood Risk Management Plans.

This is necessary to meet the requirements of both S.I. No. 435 of 2004 European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (as amended by S.I. No. 200/2011), and S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations 2011.

Expert Consultants have prepared these Reports on behalf of the Commissioners of Public Works to inform the Commissioners' determination as to whether the Plans are likely to have significant effects on the environment and whether an Appropriate Assessment of a plan or project is required and, if required, whether or not the plans shall adversely affect the integrity of any European site.

The Report contained in this document is specific to the Flood Risk Management Plan as indicated on the front cover.

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## Acknowledgements

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The OPW also acknowledges the participation of members of the public, representative organisations and other groups throughout each stage of consultation.



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The draft Flood Risk Management Plans are intended **for the purpose of consultation only**. They should not be used or relied upon for any other purpose or decision-making process. They are likely to be updated, refined or changed before finalisation. The Commissioners of Public Works in Ireland reserve the right to change the content and/or presentation of any of the information provided in the draft Flood Risk Management Plans at their sole discretion.

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- Wexford County Council
- Wicklow County Council
- The Environmental Protection Agency
- Met Éireann
- All members of the National CFRAM Steering and Stakeholder Groups

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## LIST OF ABBREVIATIONS

AA	Appropriate Assessment
AFA	Area for Further Assessment
CAFE	Clean Air for Europe [Directive]
CBA	Cost Benefit Analysis
CFRAM	Catchment Flood Risk Assessment and Management
CJEU	Court of Justice of the European Union
DAFM	Department of Agriculture, Food and the Marine
DAHG	Department of Arts, Heritage and the Gaeltacht
DARD	Department of Agriculture and Rural Development (Northern Ireland)
DCENR	Department of Communications, Energy and Natural Resources
DD	Drainage District
DECLG	Department of Environment, Community and Local Government
DEHLG	Department of Environment, Heritage and Local Government
EC	European Commission
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ERBD	Eastern River Basin District
FEMFRAM	Fingal East Meath Flood Risk Assessment and Management Study
FPM	Freshwater Pearl Mussel
FRA	Flood Risk Assessment
FRM	Flood Risk Management
FRMP	Flood Risk Management Plan
GIS	Geographical Information System
GSi	Geological Survey Ireland
HA	Hydrometric Area
HPW	High Priority Watercourse
IFI	Inland Fisheries Ireland
IPP	Individual Property Protection
IRBD	International River Basin District
IROPI	Imperative Reasons of Overriding Public Interest
LA	Local Authority
LAP	Local Area Plan
MCA	Multi-Criteria Analysis
MIDA	Marine Irish Digital Atlas
MPA	Marine Protected Area
MPW	Medium Priority Watercourse
NBIRBD	Neagh Bann International River Basin District
NHA	Natural Heritage Area
NIEA	Northern Ireland Environment Agency
NIS	Natura Impact Statement
NPWS	National Parks and Wildlife Service
NWIRBD	North Western International River Basin District
NWNB	North Western – Neagh Bann
OD	Ordnance Datum
OPW	Office of Public Works

OSI	Ordnance Survey Ireland
OSPAR	(Oslo Paris) Convention for the Protection of the Marine Environment of the North-East Atlantic
P/P	Plan or Programme
PFRA	Preliminary Flood Risk Assessment
RB	River Basin
RBD	River Basin District
RBMP	River Basin Management Plan
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SERBD	South Eastern River Basin District
SI	Statutory Instrument
SOP	Standard Operating Procedure
SoP	Standard of Protection
SPA	Special Protection Area
SSA	Spatial Scale of Assessment
SuDS	Sustainable Drainage Systems
SWRBD	South Western River Basin District
UNESCO	United Nations Educational, Scientific and Cultural Organization
UoM	Unit of Management
WFD	Water Framework Directive
WHO	World Health Organisation
WRBD	Western River Basin District

# 1 INTRODUCTION AND BACKGROUND

## 1.1 THE FLOODS DIRECTIVE

The Floods Directive is being implemented in Ireland through the European Communities (Assessment and Management of Flood Risks) Regulations 2010 [S.I.122/2010] (as amended by S.I.495/2015). These Regulations appoint the Office of Public Works (OPW) as the Competent Authority for the Flood Risk Management Plans (FRMPs), which set out the measures and policies that should be pursued to achieve the most cost effective and sustainable management of flood risk. The Statutory Instrument also identifies roles for other organisations; such as the Local Authorities, Waterways Ireland, the Electricity Supply Board (ESB) and Irish Water, to undertake certain duties with respect to flood risk within their existing areas of responsibility.

In Ireland, the approach to implementing the Directive has focused on a national Catchment-based Flood Risk Assessment and Management programme. This was developed to meet the requirements of the Floods Directive, as well as to deliver on core components of the 2004 Report of the Flood Policy Review Group (OPW, 2004). Pilot Catchment-based Flood Risk Assessment and Management (CFRAM) studies have been undertaken since 2006 in the Dodder and Tolka catchments, the Lee Catchment, the Suir Catchment and in the Fingal / East Meath area.

The national CFRAM programme is being progressed via six engineering consultancy projects which are based at the scale of the Water Framework Directive (WFD) River Basin Districts (RBDs). Collectively these six projects will focus on 300 Areas for Further Assessment<sup>1</sup> (AFAs) countrywide.

The South Eastern CFRAM Study was the third CFRAM Study to be commissioned. The Study area covers approximately 12,857 km<sup>2</sup> and includes six Units of Management ('UoM') each comprised of a single Hydrometric Area ('HA'). They are UoM11 (Owenavorrhagh & Blackwater RB), UoM12 (Slaney RB), UoM13 (Ballyteigue-Bannow RB), UoM14 (Barrow RB), UoM15 (Nore RB) and UoM17 (Waterford South Coast RB). UoM16 (Suir) is covered by the Suir pilot CFRAM Study and covers an area of approximately 3,542 km<sup>2</sup>. Additional information on each UoM is presented in section 3.1.2.

At the completion of the national CFRAM programme, each UoM will have its own FRMP.

Chapters 1-3 of this document describe the process that was undertaken to identify and screen the European sites that could be impacted by the FRMPs within the context of the overall South Eastern CFRAM Study. This information was used to help inform the environmental screening aspect of the Preliminary Screening stage of the Options Assessment (discussed in more detail in Chapter 3.1.1).

Chapter 4 presents a summary of the measures that are proposed for inclusion in the FRMPs and Chapter 5 presents the appropriate assessment of the Preferred Options that have been put forward at the AFA-scale in the FRMPs. Avoidance and mitigation measures have been included in Chapter 6.

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<sup>1</sup> AFAs are settlement areas which were defined as a result of the first phase of implementation of the Floods Directive, the Preliminary Flood Risk Assessment (PFRA), completed in 2011. The PFRA identified areas of existing or foreseeable future potentially significant flood risk (originally referred to as 'Areas of Potential Significant Risk', or 'APSRs') and these areas are what are now referred to in the FRMPs as 'Areas for Further Assessment', or 'AFAs'.

### 1.1.1 South Eastern Catchment-based Flood Risk Assessment and Management Study

The CFRAM Studies and their product – the Flood Risk Management Plans – are at the core of the national policy for flood risk management and the strategy for its implementation. The methodology featured in each CFRAM Study includes the collection of survey data and the assembly and analysis of meteorological, hydrological and tidal data, which are used to develop a suite of hydraulic computer models. Flood maps are one of the main outputs of the Study and are the way in which the model results are communicated to end users. The studies will assess a range of potential options to manage the flood risk and determine which, if any, is preferred for each area and will be recommended for implementation within the FRMPs. The CFRAM Studies will focus on areas where the risk is understood to be most significant, namely the AFAs, which are listed in Table 3.1.1 and shown in Figure 3.1.2.

The FRMPs arising from the South Eastern CFRAM Study are strategic plans and as described below in Section 2.1 are subject to the provisions of Article 6(3) of the EU Habitats Directive via the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) ('the 2011 Regulations'). The 2011 Regulations transpose the provisions of the Habitats Directive 92/43/EEC into Irish law and consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats) (Control of Recreational Activities) Regulations 2010, as well as addressing transposition failures identified in judgements of the Court of Justice of the European Union (CJEU).

As with Strategic Environmental Assessment (SEA), it is accepted best-practice for the Appropriate Assessment of strategic planning documents, in the context of the 2011 Regulations, to be run as an iterative process alongside the Plan development, with the emerging proposals or options continually assessed for their possible effects on European sites and modified or abandoned (as necessary) to ensure that the subsequently adopted Plan is not likely to result in significant adverse effects on any European sites, either alone or 'in combination' with other plans.

It is therefore important to recognise that the assessment of strategic plans is an important aspect in guiding the development of the Plan (and demonstrating that this has been done) as it is about (ultimately) assessing its effects.

## 1.2 LEGISLATIVE CONTEXT

The 'Habitats Directive' (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) provides legal protection for habitats and species of European importance. The main aim of the Habitats Directive is *"to contribute towards ensuring biodiversity through the conservation of natural habitats of wild fauna and flora in the European territory of the Member States to which the treaty applies"*. Actions taken in order to fulfil the Directive must be designed to: *"maintain or restore, at a favourable conservation status, natural habitats and species of wild fauna and flora of Community interest"*.

A key outcome of the Habitats Directive is the establishment of Natura 2000, an ecological infrastructure developed throughout Europe for the protection of sites that are of particular importance for rare, endangered or vulnerable habitats and species. In Ireland, Special Areas of Conservation (SACs), together with Special Protection Areas (SPAs) designated under the 'Birds Directive' (Council Directive 2009/147/EC - codified version of Directive 79/409/EEC on the

Conservation of Wild Birds, as amended), are included in the Natura 2000 network<sup>2</sup>, and are hereafter referred to as ‘European sites’.

A central protection mechanism of the Habitats Directive is the requirement of competent authorities to undertake Appropriate Assessment<sup>3</sup> (AA) to consider the possible nature conservation implications of any plan or project on European sites before any decision is made to allow the plan or project to proceed.

The 2011 Regulations provide the following definition of a plan: *“subject to the exclusion, except where the contrary intention appears, of any plan that is a land use plan within the meaning of the Planning Acts 2000 to 2011, includes-*

- (a) any plan, programme or scheme, statutory or non-statutory, that establishes public policy in relation to land use and infrastructural development in one or more specified locations or regions, including any development of land or on land, the extraction or exploitation of mineral resources or of renewable energy resources and the carrying out of land use activities, that is to be considered for adoption authorisation or approval or for the grant of a licence, consent, permission, permit, derogation or other authorisation by a public authority, or*
- (b) a proposal to amend or extend a plan or scheme referred to in subparagraph (a)”*

Not only is every new plan or project captured by the requirements of the 2011 Regulations, but each plan or project, when being considered for approval at any stage, must take into consideration the possible effects it may have in combination with other plans and projects.

**Article 6(3)** of the Habitats Directive states: *“Any plan or project not directly connected with or necessary to the management of the [European] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and if appropriate, after having obtained the opinion of the general public.”*

Article 6(4) is the procedure for allowing derogation from this strict protection, in certain restricted circumstances:

**Article 6(4)** of the Habitats Directive states: *“If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature,*

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<sup>2</sup> Natura 2000 sites are protected by Article 6(3) of the Habitats Directive. Protection is given to SACs from the point at which the European Commission and the Government agree the site as a ‘Site of Community Importance’ (SCI). Article 6(3) of the Habitats Directive and Article 4(4) of the Birds Directive also apply (respectively) to any other site or area that the Commission believes should be considered as a SAC or SPA, until their status is determined. Under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) the term ‘European site’ applies to any designated SAC or SPA; any SCI; any candidate SCI (cSCI); any candidate SAC (cSAC); and any candidate or proposed SPA (pSPA).

<sup>3</sup> ‘Appropriate Assessment’ has been historically used as an umbrella term to describe the process of assessment in its entirety from screening to IROPI (Imperative Reasons of Overriding Public Interest). The assessment process is now more commonly divided into distinct stages, one of which (Stage 2) is the ‘appropriate assessment’ stage. The overall process is often referred to as an ‘Article 6 Assessment’ or ‘Habitats Directive Assessment’ for convenience, although these terms are not included within the legislation.



*the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted."*

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the plan should aim to avoid any impacts on European sites by identifying possible impacts early in the plan-making process and writing the plan in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the AA process to the point where no adverse impacts on the site(s) remain. If the plan is still likely to result in impacts on European sites, and no further practicable mitigation is possible, then it must be rejected. If no alternative solutions are identified and the plan is required for imperative reasons of overriding public interest (IROPI test) under Article 6(4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

## 2 APPROACH

### 2.1 GUIDANCE

The European Commission (EC) has produced non-mandatory methodological guidance (EC, 2000, 2002, 2007) in relation to the process of AA which suggests a four-stage process, although not all steps may necessarily be required. The process recommends an initial “test of likely significance”, or “screening” followed, if necessary, by appropriate assessment. The Department of Environment, Heritage & Local Government<sup>4</sup> (DEHLG) has transposed the principles of the European Commission guidance into a document specific to Ireland entitled ‘*Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities*’ (DEHLG, 2010).

A summary of the stages is given below and additional detail on the iterative process by which each of the stages is reached and concluded is given overleaf in Figure 2.1.1.

**Stage One: Screening or ‘Test of Likely Significance’**- the process which identifies the likely impacts upon a European site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

**Stage Two: Appropriate Assessment** - the consideration of the impact on the integrity of the European site of the project or plan, either alone or in combination with other projects or plans, with respect to the site’s structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

**Stage Three: Assessment of Alternative Solutions** - Where adverse effects remain after the inclusion of mitigation, this Stage examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of European Sites;

**Stage Four: Assessment Where Adverse Impacts Remain** - an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

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<sup>4</sup> Since 2011 known as the Department of Community, Environment and Local Government (DECLG)

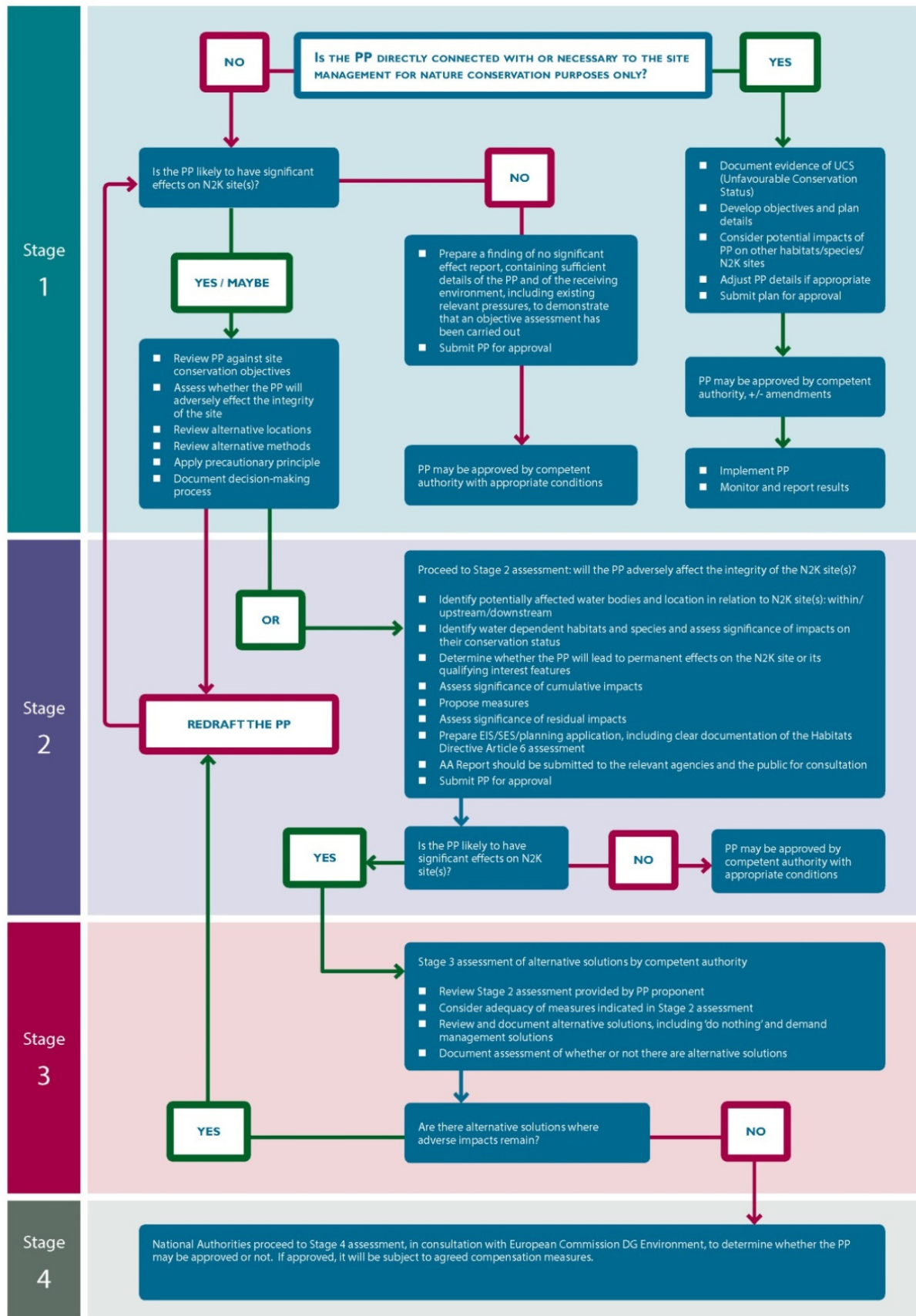


Figure 2.1.1: Schematic of the stages of Appropriate Assessment

The following guidance has been used during the preparation of this Screening Report in support of the South Eastern CFRAM Study FRMPs:

- DEHLG (2009 –rev. 2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*
- EC (2002) *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*
- EC (2000) *Managing Natura 2000 sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC*
- EC (2011) *Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones*
- EC (2007) *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC*
- EC (2013) *Guidelines on Climate Change and Natura 2000 Dealing with the impact of climate change on the management of the Natura 2000 Network of areas of high biodiversity value*
- EPA (2012) *Integrated Biodiversity Impact Assessment best practice guidance; Streamlining AA, SEA and EIA Processes, Best Practice Guidance*
- NPWS (2014) *The Status of EU Protected Habitats and Species in Ireland 2013 – Overview Report*
- Scottish Natural Heritage (2015) *Habitats Regulation Appraisal of Plans, Guidance for Plan-Making Bodies in Scotland (version 3)*

The staged approach summarised above and in Figure 2.1.1 works well at the project-level where the scheme/project design is established and possible effects on European sites can be quantitatively assessed with the benefit of detailed survey data. In contrast, the nature of the South Eastern CFRAM Study and each of its FRMPs presents a number of distinct challenges for a ‘strategic’ AA; in particular, every possible outcome of each FRMP cannot always be identified and assessed in detail, since it is not within the remit of the FRMPs to develop detailed designs for individual risk management measures.

It is emphasised that the FRMPs sets out the proposed strategy, actions and measures that are considered to be the most appropriate at this stage of assessment. The observations and views submitted as part of the consultation on the Draft Plan have been reviewed and taken into account before the Final Plan is submitted for comment, amendment or approval by the Minister. Some changes may have arisen as a result of the consultation process. Where changes have occurred, these have been reported on and, where applicable, re-assessed in the NIS.

Further, once the FRMPs are finalised, measures involving physical works (e.g., flood protection schemes) will need to be further developed at a local, project level before Exhibition or submission

for planning approval. At this stage, local information that can not be captured at the Plan-level of assessment, such as ground investigation results and project-level environmental assessments, may give rise to some amendment of the proposed measure to ensure that it is fully adapted, developed and appropriate within the local context.

While the degree of detail of the assessment undertaken to date would give confidence that any amendments should generally not be significant, the measures set out in the FRMPs may be subject to some amendment prior to implementation, and in some cases may be subject to significant amendment.

In this context, it is stressed that the SEA and AA undertaken in relation to the FRMP are plan-level assessments. The FRMP will inform the progression of the preferred measures, but project-level assessments will need to be undertaken as appropriate under the relevant legislation for consenting to that project for any physical works that may progress in the future. The approval of the Final FRMP does not confer approval or permission for the installation or construction of any physical works. The requirements for AA Screening, including any particular issues such as knowledge gaps or mitigation measures that are expected to be necessary, are set out in the Natura Impact Statement (NIS) as relevant.

It is also important to note that the safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty, but by the possibility of significant effects and that the precautionary approach to identifying the potential impacts of the plan is maintained at all levels. Chapter 3.1.3 discusses these aspects in more detail.

The processes for progression of measures involving physical flood relief works are described in section 8.1.2 of the FRMP. EIA and/or AA Screening, and, where so concluded from the screening, Environmental Impact Assessment and / or Appropriate Assessment, must be undertaken in accordance with the relevant legislation where relevant as part of the progression of measures that involve physical works. The body responsible for implementation of such measures, typically either the OPW or the relevant local authority is required to ensure that these requirements will be complied with.

Project-level assessment will take account of the potentially viable measures identified in the Plan, but will involve the consideration of alternatives at the project-level and, as appropriate, EIA and AA, including the definition of necessary mitigation measures at the project-level. Only schemes/measures confirmed to be viable following project level assessment will be brought forward for Exhibition/Planning and detailed design.

### 3 STAGE 1: SCREENING FOR APPROPRIATE ASSESSMENT

Screening is the process of deciding whether or not an Appropriate Assessment is required for a plan or project. It addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the Habitats Directive, i.e.

- Whether a plan or project is directly connected to or necessary for the management of the site; and
- Whether a plan or project, alone or in-combination with other plans and projects, is likely to have significant effects on a European site in view of its Qualifying Interest Features and their corresponding Conservation Objectives.

The Screening Stage includes:

- Site location and description of the plan or project;
- Identification and initial screening of European sites for potential negative effects;
- Screening conclusion.

The assessment of likely significant effects is based on the likelihood and significance of any effects of the proposed plan or project on each European site's qualifying interests, particularly with reference to the relevant conservation objectives. In this context, the likelihood depends on whether there is the opportunity and pathway for the effect to occur, and the significance is regarded as the effect on the susceptible qualifying interests of the site(s). If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 Appropriate Assessment.

#### 3.1 DESCRIPTION OF THE PLAN

##### 3.1.1 The South Eastern CFRAM Study and its associated FRMPs

The South Eastern CFRAM Study is not directly connected with or necessary to the management of any European site.

The objectives of the South Eastern CFRAM Study are to:

- Identify and map the existing and potential future flood hazard<sup>5</sup> within the Study area;
- Assess and map the existing and potential future flood risk<sup>6</sup> within the Study area;
- Identify viable structural and non-structural options and measures for the effective and sustainable management of flood risk in the AFAs and within the Study area as a whole, and

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<sup>5</sup> Potential future flood hazards and risk include those that might foreseeably arise (over the long-term) due to the projected effects of climate change, future development and other long-term developments.

<sup>6</sup> Flood risk is defined as a combination of probability and degree of flooding and the adverse consequences of flooding on human health, people and society, the environment, cultural heritage and economic activity and infrastructure.

- Prepare a set of FRMPs for the Study area, and undertake associated Strategic Environmental Assessment and, as necessary, Appropriate Assessment, that sets out the policies, strategies, measures and actions that should be pursued by the relevant bodies, including the OPW, Local Authorities and other stakeholders, to achieve the most cost-effective and sustainable management of existing and potential future flood risk within the Study area, taking account of environmental plans, objectives and legislative requirements and other statutory plans and requirements.

**It is not an objective of the FRMPs to develop detailed designs for individual flood risk management measures.**

### **3.1.2 Site Location**

As outlined earlier in Section 1.1.1, the South Eastern CFRAM Study area includes six Units of Management (UoM) / Hydrometric Areas (HAs), each of which will have its own FRMP. The UoMs constitute major catchments / river basins (typically greater than 1,000km<sup>2</sup>) and their associated coastal areas, or conglomerations of smaller river basins and their associated coastal areas. Within the South Eastern CFRAM Study area each UoM boundary, generally speaking, matches the boundary of a corresponding Hydrometric Area (HA). HAs are areas comprising a single large river catchment, or a group of smaller ones, that have been delineated across Ireland and Northern Ireland for the purposes of hydrological activities. This Natura Impact Statement (NIS) is for the FRMPs of UoM 11, UoM12 and UoM13.

#### **3.1.2.1 UoM11**

UoM11 is a relatively small coastal catchment which is mainly rural in nature. Its two largest settlements are Gorey and Courtown and the area is predominantly given to agriculture, but with a relatively higher percentage of land in use for complex cultivation (such as soft fruit and vegetables) than other areas of Ireland outside the South East. There are three AFAs in UoM11, shown in shown in Figure 3.1.1.

#### **3.1.2.2 UoM12**

UoM12 encompasses the catchment of the River Slaney and Wexford Harbour. Its main settlements are the towns of Wexford and Enniscorthy. The catchment is predominantly rural with significant forested areas and peat bogs. Agriculture is the predominant land use, with around a quarter of the UoM given to arable farming or the cultivation of fruit and vegetables and around 57% grassland. There are seven AFAs in UoM12, shown in Figure 3.1.1.

#### **3.1.2.3 UoM13**

UoM13 is a coastal basin with a number of small river catchments within it. The area is again principally rural with no large settlements (Taghmon being the only one with greater than 500 inhabitants in the 2011 census and Campile and Kilmore Quay being the next largest). Over a quarter of the UoM is given to arable farming and almost two thirds is grassland. The UoM has the highest percentage of land in the SE in use for complex cultivation (such as soft fruit and vegetables). There is just one AFA in UoM13, shown in Figure 3.1.1.

### 3.1.2.4 Projects running in Parallel with the South Eastern CFRAM Study

The National CFRAM Programme is delivering on the requirements of the Government Policy and the EU 'Floods' Directive for most of the AFAs. In some areas however, other parallel or preceding projects have delivered on these requirements. In relation to the FRMPs for UoM11, UoM12 and UoM13, there are two relevant projects, both of which are located in UoM12:

- Enniscorthy Flood Relief Scheme ([www.enniscorthyfds.ie](http://www.enniscorthyfds.ie))
- Tullow Flood Relief Scheme

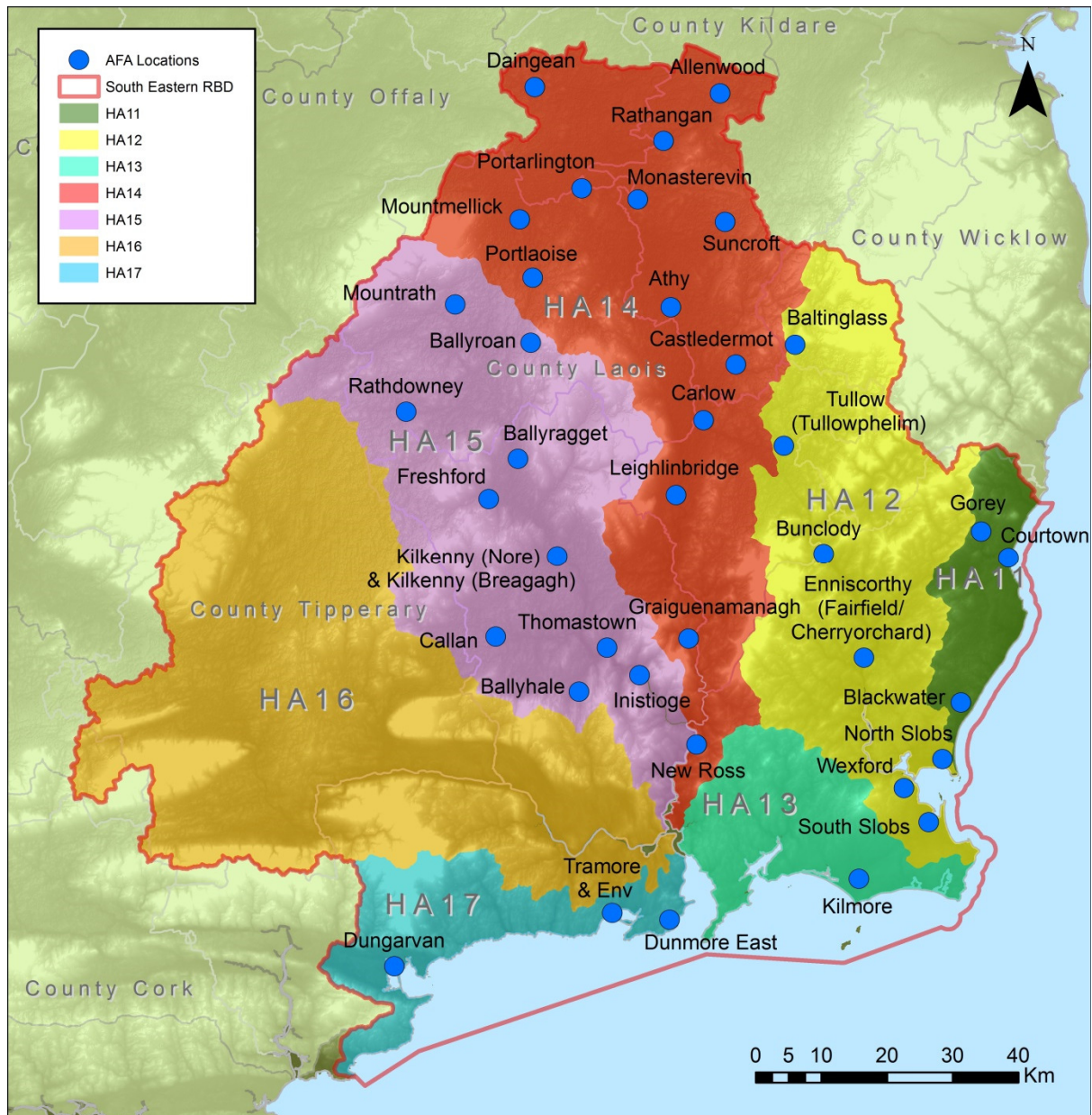
The FRMP includes the measures undertaken or proposed through the above Projects, and these will be reviewed for any potential in-combination or cumulative effects.

### 3.1.3 Methodology for the Appropriate Assessment

Although the AA is being carried out on activities occurring within the functional area of the UoM11, UoM12 & UoM13 FRMPs, the likely significance of the effects of the proposed plans will be assessed on European sites in adjacent river basins. The likely significance of effects of the proposed plan on the European sites identified and their conservation objectives have been assessed taking into account the source-pathway-receptor model. The source is defined as the individual element of the plan that has the potential to impact on a European site, its qualifying interests and its conservation objectives. The pathway is defined as the means or route by which a source can migrate to the receptor. The receptor is defined as the European site and its qualifying interests. Each element of the model may exist independently, however a potential impact is only created where there is a linkage between the source, pathway and receptor. The NIS will review and incorporate the conclusions of the other CFRAM FRMPs, where appropriate, for in-combination and cumulative impacts.

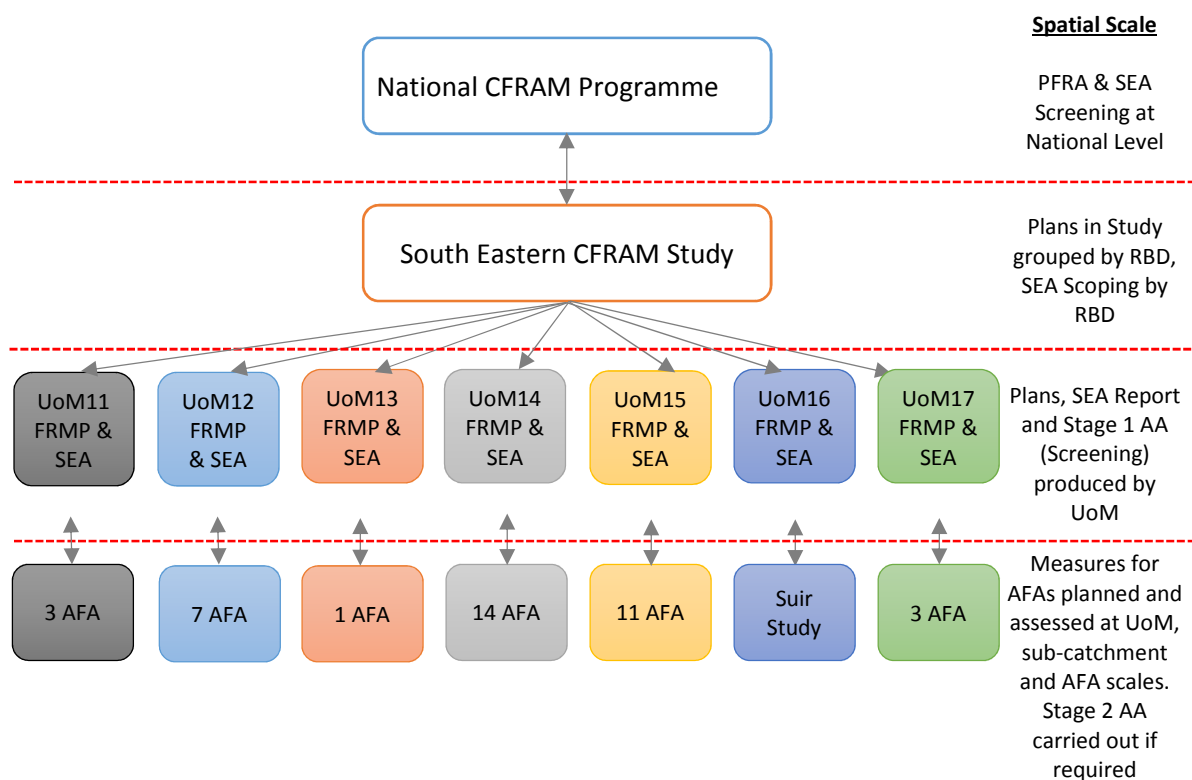
Figure 3.1.1 shows the extent of each UoM, for which each of the FRMPs will be prepared in the South Eastern CFRAM Study area, and also the distribution of AFAs within each UoM.





**Figure 3.1.1: South Eastern CFRAM Study Area and Associated Units of Management**

Figure 3.1.2 illustrates the structure and spatial scales of assessment of the National CFRAM programme, the South Eastern CFRAM Study, the FRMPs and the individual AFAs within each UoM.



**Figure 3.1.2: Spatial Scales of Assessment in the South Eastern CFRAM Study, FRMPs, SEAs and AA**

A list of the AFAs being investigated as part of the South Eastern CFRAM Study is given in Table 3.1.1. Where alternate nomenclature is use for AFAs in this report, this is shown in italics.

**Table 3.1.1: List of AFAs in the UoM11, UoM12 and UoM13 FRMPs**

UoM	AFA	County	Flood Source
11	Blackwater	Wexford	Fluvial
	Courtown	Wexford	Fluvial & Coastal
	Gorey	Wexford	Fluvial
12	Baltinglass	Wicklow	Fluvial
	Bunclody	Wexford	Fluvial
	Enniscorthy	Wexford	Fluvial
	Tullow	Carlow	Fluvial
	Wexford	Wexford	Fluvial & Coastal
	South Slob	Wexford	Coastal
	North Slob	Wexford	Coastal
13	Kilmore	Wexford	Coastal

As illustrated in Figure 3.1.2, a FRMP has been produced for each UoM. For each FRMP produced there is an associated SEA Environmental Report and NIS. In accordance with the 2011 Regulations, the NIS is a report comprising the scientific examination of the Plan [the FRMP] and the relevant European site (or sites), to identify and characterise any possible implications of the plan either individually or in combination with other plans or projects, in view of the conservation objectives of the site or sites. It will also include any further information including but not limited to, plans, maps or drawings, scientific data or information or data required to enable the carrying out of an appropriate assessment.

Each NIS has fed into and influenced the related SEA Environmental Report and both environmental reports have fed into and influenced the draft FRMPs as they have evolved. Following completion of all three draft documents, there was a consultation period to allow statutory and non-statutory consultees, along with the public, to comment on the Plans and Reports produced.

Under the 2011 Regulations, an appropriate assessment carried out shall *“include a determination by the public authority, pursuant to Article 6(3) of the Habitats Directive as to whether or not the plan...<sup>7</sup> would adversely affect the integrity of a European site... before a decision is made to approve, undertake or adopt a plan”*.

Figure 3.1.3 gives an overview of the iterative process being undertaken as part of the CFRAM Study to develop the final Flood Risk Management (FRM) measures. Within each FRMP the proposed FRM *Methods* necessary at an AFA Spatial Scale of Assessment (SSA)<sup>8</sup> have been considered. At this scale, methods benefitting only the particular AFA in question are considered, even if the implementation of a given method includes works or activities outside of the AFA, i.e., elsewhere in the sub-catchment or UoM. Examples of where this might apply would be storage options upstream of the AFA, or flood forecasting and warning systems, that provide benefits to no other AFAs than the AFA under consideration.

For each AFA to be assessed, the starting point was to look at a long list of FRM methods that could be implemented. This long list of FRM methods was specified by OPW as being the policy, soft engineering and hard engineering methods to manage flood risk in Ireland.

If a FRM method was found to be technically feasible, i.e. it could completely or partially manage flood risk for an area, it was then screened for its economic viability. If the method was found to be economically viable it was then screened for potentially detrimental environmental and social impacts.

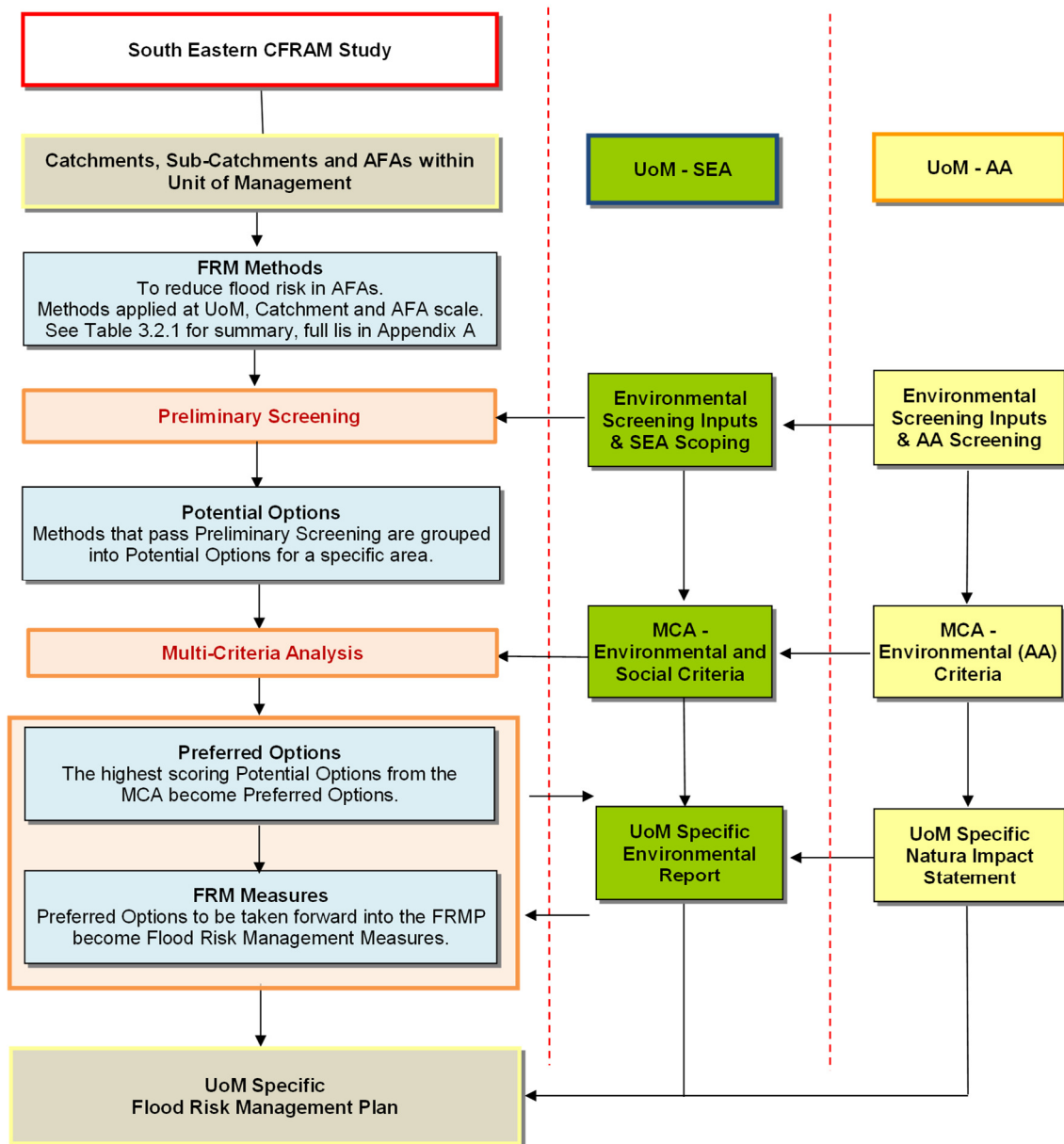
The environmental considerations in the FRMP screening were based on the potential for high level impacts on designated European sites in the first instance, with national and regional nature conservation designations also taken into consideration during the MCA.

The environmental considerations in the FRMP screening were based on the potential for high level impacts on designated European sites in the first instance, with national and regional nature conservation designations also taken into consideration during the MCA. High level impacts are a generic and conservative description of potential impacts, taking into account plan-level FRM measures insofar as they are defined.

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<sup>7</sup> (or project)

<sup>8</sup> The AFA SSA refers to an individual AFA; such areas would include towns, villages, areas where significant development is anticipated and other areas or structures for which the risk that could arise from flooding is understood to be significant.



**Figure 3.1.3: Interactions of the Plan and Environmental Assessments**

Methods that were found to be technically, economically, socially and environmentally acceptable in the preliminary screening were then combined into groups of *Options*, which were subjected to detailed Multi-Criteria Analysis (MCA), looking at technical, economic, social and environmental criteria. The highest scoring *Option* for each AFA, while also taking into consideration feedback from public and stakeholder consultation, was put forward into the draft FRMP for consultation as the *Preferred Option*. The SEA and NIS were critical for the MCA as they provide necessary information for the environmental and social inputs.

The observations and views submitted as part of the consultation on the Draft Plan were reviewed and taken into account before the Plan is submitted for comment, amendment or approval by the

Minister. Some changes may have arisen as a result of the consultation process and, where relevant, these have been reported on in the NIS.

It should be noted that, once the FRMPs are finalised, measures involving physical works (e.g., flood protection schemes) will need to be further developed at a local, project level before Exhibition or submission for planning approval. At this stage, local information that can not be captured at the Plan-level of assessment, such as ground investigation results and project-level environmental assessments, may give rise to some amendment of the proposed measure to ensure that it is fully adapted, developed and appropriate within the local context. The measures set out in the FRMPs may therefore be subject to some amendment prior to implementation. However, the degree of detail of the assessment undertaken to date would give confidence that such amendments should generally not be significant.

### **3.2 ELEMENTS OF THE FRMPs WITH POTENTIAL TO CAUSE ADVERSE IMPACTS ON EUROPEAN SITES**

Table 3.2.1 overleaf summarises the long list of FRM methods that are screened for potential implementation within FRMPs. Screening is undertaken at UoM, sub-catchment, AFA (and potentially sub-AFA) level.

The methods highlighted in green are non-structural policy and administrative based and currently do not include physical works. The methods highlighted in red are considered structural methods, wherein there will be an engineered scheme with works required on the ground at a specific geographic location.

The non-structural and structural options have, in general, been retained through the screening process, even though they cannot manage flood risk as a stand-alone method. These will be incorporated later in the process to complement other methods that could manage flood risk. The 'Do Nothing' Method would have generally been screened out, as it is likely to increase the flood risk to an area, through abandonment of all FRM activities, and would therefore not be feasible on technical grounds.

A description of high-level environmental impacts that may arise from implementation of each method is provided in Appendix A. These high level impacts were provided to the statutory SEA consultees, progress and steering group members and stakeholders, for consultation as part of the South Eastern CFRAM Study SEA scoping in September / October 2015.

**Table 3.2.1: Summary of Flood Risk Management Methods**

Method	Description	
Do Nothing	Implement no new flood risk management measures and abandon any existing practices.	Non-structural Methods
Maintain Existing Regime	Continue with any existing flood risk management practices, such as reactive maintenance.	
Do Minimum	Implement additional minimal measures to reduce the flood risk in specific problem areas without introducing a comprehensive strategy, includes channel or flood defence maintenance works / programme.	
Planning and Development Control	Zoning of land for flood risk appropriate development, prevention of inappropriate incremental development, review of existing Local Authority policies in relation to planning and development and of inter-jurisdictional co-operation within the catchment, etc.	
Building Regulations	Regulations relating to floor levels, flood-proofing, flood resilience, sustainable drainage systems, prevention of reconstruction or redevelopment in flood-risk areas, etc.	
Catchment Wide Sustainable Drainage Systems (SuDS)	Implement SuDS on a catchment wide basis.	
Land Use Management (NFM)	Creation of wetlands, riparian buffer zones, etc.	
Strategic Development Management	Necessary floodplain development (proactive integration of structural measures into development designs and zoning, regulation on developer-funded communal retention, drainage and / or protection systems, etc.)	
Flood Warning / Forecasting	Installation of a flood forecasting and warning system and development of emergency flood response procedures.	
Public Awareness Campaign	Targeted public awareness and preparedness campaign.	
Upstream Storage	Single or multiple site flood water storage, flood retardation, etc.	Structural Methods
Improvement of Channel Conveyance	In-channel works, floodplain earthworks, removal of constraints / constrictions, channel / floodplain clearance, etc.	
Hard Defences	Construct walls, embankments, demountable defences, Rehabilitate and / or improve existing defences, etc.	
Relocation of Properties	Relocation of properties away from flood risk.	
Diversion of Flow	Full diversion / bypass channel, flood relief channel, etc.	
Other works	Minor raising of existing defences / levels, infilling gaps in defences, site specific localised protection works, etc.	
Individual Property Flood Resistance	Protection / flood-proofing and resilience.	

### 3.3 RELATIONSHIP WITH OTHER RELEVANT PLANS AND PROGRAMMES

The South Eastern CFRAM Study is set in a flood risk management planning context, where plans, projects and activities and their associated SEA and AA requirements are all linked.

Further examination of the UoM11, UoM12 and UoM13 FRMPs in this NIS will take account of the OPW's obligation to comply with all environmental legislation and align with and cumulatively contribute towards – in combination with other users and bodies – the achievement of the objectives of the regulatory framework for environmental protection and management led by the WFD and implemented by the River Basin Management Plans (RBMPs).

Table 3.3.1 identifies the main significant environmental plans, programmes and legislation, adopted at International, European Community or Member State level, which would be expected to influence, or be influenced by, the South Eastern FRMPs. While it is recognised that there are many plans, programmes and legislation that will relate to the FRMPs, it is considered appropriate to only deal with those significant texts, to keep the assessment at a strategic level.

**Table 3.3.1: List of Other Plans and Projects with potential for in-Combination Effects**

Level	Plan / Programme / Legislation
EU Level	<ul style="list-style-type: none"> <li>▪ <b>EU Floods Directive [2007/60/EC]</b></li> <li>▪ A Blueprint to Safeguard Europe's Water Resources [COM(2012)673]</li> <li>▪ Bathing Water Directive [2006/7/EC]</li> <li>▪ Birds Directive [2009/147/EC]</li> <li>▪ Bonn Convention [L210, 19/07/1982 (1983)]</li> <li>▪ Drinking Water Directive [98/83/EC]</li> <li>▪ EIA Directive [85/337/EEC] [2014/52/EU]</li> <li>▪ Environmental Liability Directive [2004/35/EC]</li> <li>▪ Environmental Quality Standards Directive [2008/105/EC]</li> <li>▪ EU Biodiversity Strategy to 2020 [COM(2011)244]</li> <li>▪ European Landscape Convention [ETS No. 176]</li> <li>▪ Groundwater Directive [80/68/EEC] and Daughter Directive [2006/118/EC]</li> <li>▪ Habitats Directive [92/43/EEC]</li> <li>▪ Marine Strategy Framework Directive [2008/56/EC]</li> <li>▪ Nitrates Directive [91/676/EEC]</li> <li>▪ Renewable Energy Directive [2009/28/EC]</li> <li>▪ SEA Directive [2001/42/EC]</li> <li>▪ Second European Climate Change Programme [ECCP II] 2005.</li> <li>▪ Sewage Sludge Directive [86/278/EEC]</li> <li>▪ Soils Thematic Strategy [COM(2006) 231]</li> <li>▪ Urban Wastewater Treatment Directive [91/271/EEC]</li> <li>▪ Water Framework Directive [2000/60/EC]</li> <li>▪ World Heritage Convention [WHC-2005/WS/02]</li> </ul>
National Level	<ul style="list-style-type: none"> <li>▪ A Strategy for the Conservation of Freshwater Pearl Mussel in Ireland, 2011 (NPWS, 2011)</li> <li>▪ Arterial Drainage Maintenance and High Risk Designation Programme 2016-2021 (OPW, 2016)</li> <li>▪ Climate Change Sectoral Adaptation Plan for Flood Risk Management, 2015 (OPW, 2015)</li> <li>▪ Fisheries Acts 1959 to 2007 (S.I. No. 14 of 1959 and No. 17 of 2007)</li> <li>▪ Food Harvest 2020 (DAFM, 2010)</li> <li>▪ Food Wise 2025 (DAFM, 2015)</li> <li>▪ Capital Investment Programme 2014-2016 (Irish Water, 2014)</li> <li>▪ Grid 25 Implementation Plan 2011-2016 (EIRGIRD, 2010)</li> <li>▪ Harnessing Our Ocean Wealth: An Integrated Marine Plan for Ireland (Inter-Departmental</li> </ul>

Level	Plan / Programme / Legislation
	<p>Marine Coordination Group 2012)</p> <ul style="list-style-type: none"> <li>▪ Irish Geological Heritage (IGH) Programme (GSI 1998-)</li> <li>▪ Lead in Drinking Water Mitigation Plan (Irish Water, 2016)</li> <li>▪ National Biodiversity Plan (2nd Revision 2011-2016) (DAHG, 2011)</li> <li>▪ National Climate Change Adaptation Framework (DEHLG, 2012)</li> <li>▪ National Climate Change Strategy 2007-2012 (DEHLG, 2007)</li> <li>▪ National (Climate) Mitigation Plan (DECLG, 2012)</li> <li>▪ National Development Plan 2007-2013 (DECLG, 2007)</li> <li>▪ National Forestry Programme 2014-2020 (DAFM, 2015)</li> <li>▪ National Forest Policy Review (DAFM, 2014)</li> <li>▪ National Landscape Strategy for Ireland (Draft) 2014 – 2024 (DAHG, 2014)</li> <li>▪ National Monuments Acts (1930 to 2004) (S.I. No. 2 of 1930 &amp; No. 22 of 2004)</li> <li>▪ National Renewable Energy Action Plan (DCENR, 2010)</li> <li>▪ National Secondary Road Needs Study 2011 (NRA, 2011)</li> <li>▪ National Spatial Strategy 2002-2020 (DELG, 2002)</li> <li>▪ National Sludge Wastewater Sludge Management Plan (Draft) (Irish Water, 2015)</li> <li>▪ National Strategic Plan for Sustainable Aquaculture Development (DAFM, 2015)</li> <li>▪ Offshore Renewable Energy Development Plan (DCENR, 2014)</li> <li>▪ Planning System and Flood Risk Management (OPW, 2009)</li> <li>▪ Raised Bog SAC Management Plan (Draft) (DAHG, 2014),</li> <li>▪ National Peatland Strategy (Draft) (NPWS, 2014)</li> <li>▪ Review of Raised Bog Natural Heritage Area Network (NPWS, 2014)</li> <li>▪ Report of the Flood Policy Review Group (OPW, 2004)</li> <li>▪ River Basin Management Plan for Ireland (2018-2021) (Draft) (DHPCLG, 2017)</li> <li>▪ Rural Development Programme 2014-2020 (DAFM,2015)</li> <li>▪ Water Services Strategic Plan (Irish Water, 2014)</li> </ul>
<p><b>Regional Level</b></p>	<ul style="list-style-type: none"> <li>▪ <b>UoM11/12/13 Flood Risk Management Plan</b></li> <li>▪ South Eastern RBD River Basin Management Plan 2009-2015 (DEHLG, 2010)</li> <li>▪ South Central BAU (Business Area Unit) 2016-2020 (Coillte, 2016)</li> <li>▪ South East Leinster BAU (Business Area Unit) 2016-2020 (Coillte, 2016)</li> <li>▪ Southern Region Waste Management Plan 2015 2021</li> <li>▪ Regional Planning Guidelines for the Greater Dublin Area 2010-2022, (Regional Planning Guidelines Office, 2010)</li> <li>▪ Regional Planning Guidelines for the South-East 2010-2022, (Regional Planning Guidelines Office, 2010)</li> </ul>
<p><b>Sub-Regional</b></p>	<ul style="list-style-type: none"> <li>▪ Carlow County Development Plan 2015-2021 (Carlow County Council, 2015)</li> <li>▪ Enniscorthy Town &amp; Environs Development Plan 2008-2014 (Wexford County Council, 2008)</li> <li>▪ Wexford County Development Plan 2013-2019 (Wexford County Council, 2012)</li> <li>▪ Wexford Town &amp; Environs Development Plan 2009-2015 (Wexford County Council, 2009)</li> <li>▪ Wicklow County Development Plan 2016-2022 (Wicklow County Council, 2015 )</li> <li>▪ Carlow County Landscape Character Assessment and Schedule of Protected Views (Carlow County Council, 2015)</li> <li>▪ Wexford Landscape Assessment Volume 3 (Wexford County Council, 2012)</li> <li>▪ Wicklow Landscape Assessment Appendix 5 (Wicklow County Council, 2015)</li> <li>▪ Wind Energy Strategy for County Carlow Appendix 5 (Carlow County Council, 2008)</li> <li>▪ Wind Energy Strategy Wexford Volume 3 (Wexford County Council, 2012)</li> <li>▪ Wicklow County Wind Energy Strategy Appendix 1 (Wicklow County Council, 2008)</li> <li>▪ County Carlow 2021 - Local Economic &amp; Community Plan (LECP) 2016-2021 (Carlow County Council, 2016)</li> <li>▪ Wexford Local Economic &amp; Community Plan 2016-2021 (Wexford County Council, 2016)</li> <li>▪ Derreen (Slaney) Freshwater Pearl Mussel Sub-Basin Management Plan (DEHLG, 2009)</li> <li>▪ Coolgreany Water Supply Scheme (GSI, 2010)</li> <li>▪ Enniscorthy Public Water Supply Scheme (GSI, 2010)</li> <li>▪ Kilmuckridge Water Supply Scheme (GSI, 2010)</li> <li>▪ Carrigbyrne Water Scheme (GSI, 2010)</li> </ul>



Level	Plan / Programme / Legislation
	<ul style="list-style-type: none"> <li>▪ Baltinglass Water Supply Groundwater Source Protection Report (GSI, 2003)</li> <li>▪ County Carlow Heritage Plan 2002-2012 (Carlow County Council, 2002)</li> <li>▪ Conservation and Heritage Section 11 2011-2017 (Wexford County Council, 2011)</li> <li>▪ Wicklow Heritage Plan 2009-2014 (Wicklow County Council, 2009)</li> <li>▪ County Carlow Housing Strategy (Carlow County Council, 2009)</li> <li>▪ Housing Strategy 2013-2019 Volume 6 (Wexford County Council, 2012)</li> <li>▪ Housing Strategy 2016-2022 Appendix 3 (Wicklow County Council, 2015)</li> <li>▪ Bunclody Local Area Plan 2009-2015 (Wexford County Council, 2009)</li> <li>▪ Courtown and Riverchapel Local Area Plan 2015-2021</li> <li>▪ Coolgreany Local Area Plan 2002 (Wexford County Council, 2002)</li> <li>▪ Curraclloe Local Area Plan 2004 (Wexford County Council, 2004)</li> <li>▪ Duncannon Local Area Plan 2004 (Wexford County Council, 2004)</li> <li>▪ Enniscorthy Local Area Plan 2014-2020 (Wexford County Council, 2014)</li> <li>▪ Gorey Town &amp; Environs Local Area Plan 2010 (Wexford County Council, 2010)</li> <li>▪ Rosslare Harbour Local Area Plan 2002 (Wexford County Council, 2002)</li> <li>▪ Tullow Local Area Plan 2010- 2016 (Carlow County Council, 2010)</li> <li>▪ Baltinglass Town Plan 2008-2014 (Wicklow County Council, 2008)</li> <li>▪ County Wicklow Diversity Action Plan 2010-2015 (Wicklow County Council, 2010)</li> <li>▪ Wexford County Council's Biodiversity Action Plan 2013-2018 (Wexford County Council, 2013)</li> <li>▪ Bannow Bay Shellfish Pollution Reduction Programme (DEHLG, 2009)</li> <li>▪ Wexford Harbour Inner Shellfish Pollution Reduction Programme (DEHLG, 2009)</li> <li>▪ Wexford Harbour Outer Shellfish Pollution Reduction Programme (DEHLG, 2009)</li> </ul>

## 3.4 EUROPEAN SITES

Special Areas of Conservation (SACs) are prime wildlife conservation areas, considered to be important on a European as well as Irish level. Most SACs are in rural areas, although a few sites reach into town or city landscapes, such as Dublin Bay and Cork Harbour.

SACs are selected under the Habitats Directive for the conservation of a number of habitat types, which in Ireland includes raised bogs, blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets. There are 25 species of flora and fauna, including Salmon, Otter, Freshwater Pearl Mussel, Bottlenose Dolphin and Killarney Fern that are also afforded protection. These are known as Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds).

The areas chosen as SAC in Ireland cover an area of approximately 13,500km<sup>2</sup>. Roughly 53% is land, the remainder being marine or large lakes. Across the EU, over 12,600 sites have been identified and proposed, covering 420,000km<sup>2</sup> of land and sea, an area the size of Germany.

Special Protection Areas, (SPAs) are conservation areas which are important sites for rare and vulnerable birds (as listed on Annex I of the Birds Directive), and/or for regularly occurring migratory species. SPAs are designated under the 'Birds Directive' (Council Directive 2009/147/EC - codified version of Directive 79/409/EEC on the Conservation of Wild Birds, as amended).

Ireland's SPA Network encompasses over 5,700km<sup>2</sup> of marine and terrestrial habitats. The marine areas include some of the productive intertidal zones of bays and estuaries that provide vital food resources for several wintering wader species. Marine waters adjacent to breeding seabird colonies and other important areas for seaducks, divers and grebes are also included in the network. The remaining areas of the SPA network include inland wetland sites important for wintering waterbirds and extensive areas of blanket bog and upland habitats that provide breeding and foraging resources for species including Merlin and Golden Plover. Agricultural land also represents a share of the SPA network, ranging from the extensive farmland of upland areas where its hedgerows, wet grassland and scrub offer feeding and/or breeding opportunities for Hen Harrier to the intensively farmed coastal polderland where internationally important numbers of swans and geese occur. Coastal habitats including Machair are also represented in the network, which are of high importance for Chough and breeding Dunlin.

### 3.4.1 Initial Screening Exercise

#### 3.4.1.1 Capture of Sites for Screening – RBD/Study Scale

As recommended in the *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities* (DEHLG, 2010), all European sites within the South Eastern CFRAM Study area and within a 15 kilometre buffer of the Study area were included in the initial capture for AA screening.

The DEHLG Guidance also recommends that sites beyond this distance should also be considered where there are hydrological linkages or other pathways that extend beyond 15 km thereby ensuring that all potentially affected European sites are included in the screening process.

It is acknowledged that as the nature of the FRMPs includes the potential to impact water quality and/or quantity, there is thus the potential for ecological receptors (particularly those that are water dependent) to experience potential impacts at distances even greater than 15km from the source. In the South Eastern CFRAM Study, each Unit of Management represents a single Hydrometric Area, each of which, generally speaking, has its river sources rising in an upland area and terminating at the coastline. The boundary of the Hydrometric Area represents a defined watershed, beyond which watercourses drain into a different river basin and to a different part of the coastline. The limit of the CFRAM Study Area therefore incorporates a tangible boundary for hydraulic and hydrological impacts. The OPW recognises that there are other potential impact pathways other than hydraulic/hydrological pathways for ecological receptors, such as groundwater, land and air and that mobile species, in particular birds, may range for distances beyond 15km.

As discussed in 0, for the CFRAM Study, desktop information and information received during the consultation was used in an iterative process with the AA and SEA to inform the preliminary screening of *Methods* which examines technical, economic, social and environmental aspects before subjecting the selected *Options* to detailed Multi-Criteria Analysis (MCA). In this way, *Methods* or *Options* which pose a high risk of significant adverse impacts can be ruled out in the earliest stages of *Option* development, therefore ensuring that, using the information available at plan level, *Options* which were considered likely to generate impacts that extend their influence more than 15km beyond the limits of the South Eastern CFRAM Study area were not taken forward for MCA and to the FRMPs. Thus it was not considered necessary at Study or Plan level to include sites further than 15km from the source.

The potential physical flood relief works or 'Schemes' set out in the Plans that have been developed through the CFRAM Programme are to an outline design, and are not at this point ready for construction. Further option design through a project-level of assessment will be required for such works before implementation.

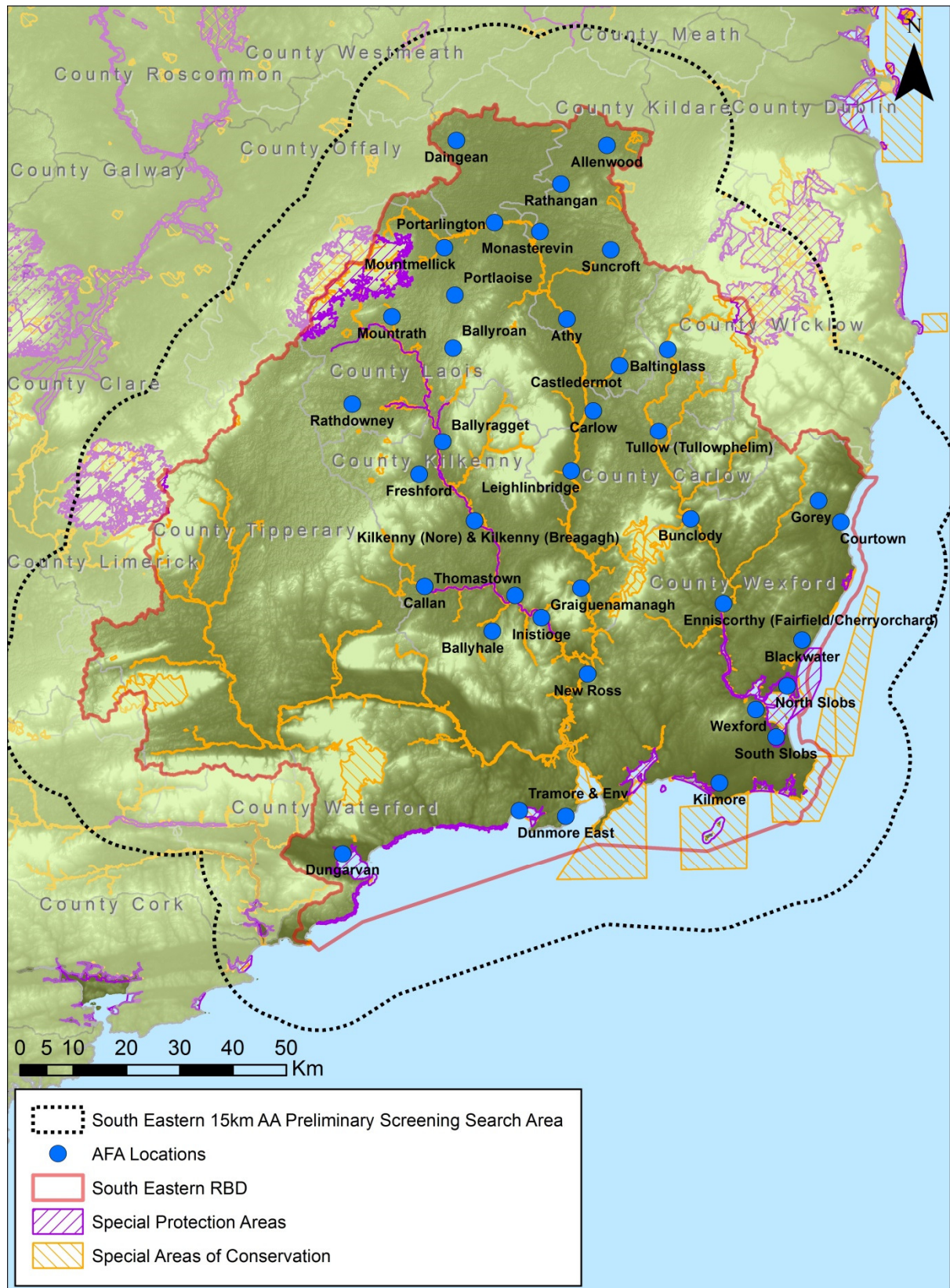
At the project level, where physical measures are to be developed, local information that can not be captured at the Plan-level of assessment, such as project-level environmental surveys and assessments, will be used to inform the Appropriate Assessment of the potential physical flood relief works or 'Schemes'. The capture of additional local information may result in the identification of European sites within the Scheme's Zone of Influence that were not apparent during the plan screening process.

The initial site selection exercise was carried using the ESRI ArcMap GIS package, into which was loaded the most recently issued boundary shapefiles for all SACs and SPAs in Ireland, each respectively downloaded from the NPWS<sup>9</sup> website. These were cross-referenced against the boundary shapefile for the South Eastern CFRAM Study area. A search area of 15km from the boundary of the South Eastern CFRAMs Study area was applied and all European sites either wholly or partially within this search area were captured. This exercise is illustrated in Figure 3.4, which shows the extents of the preliminary search area and the outlines of all the SAC and SPA areas within and adjacent to the South Eastern CFRAM Study area.

The initial selection exercise for the South Eastern CFRAM Study resulted in a total of 96 European sites being captured for screening.

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<sup>9</sup><http://www.npws.ie/maps-and-data/designated-site-data/download-boundary-data> SPA\_ITM\_2015\_11a.zip and SAC\_ITM\_WGS84\_2015\_11a.zip (accessed 17 November 2015)



**Figure 3.4.1: South Eastern CFRAM Study Area, showing AFAs and Study-Scale Search Area for European Sites**

### 3.4.1.2 European Site Screening – Plan Scale

The UoM SSA refers to a full hydrometric area. At this scale, methods that could provide benefits to multiple (often all) AFAs within the Unit of Management and other areas were considered, along with the spatial and temporal coherence of methods being considered at smaller SSAs.

As discussed above in Section 3.1.3, each UoM has its own FRMP and thus the screening of European sites was grouped by UoM in the overall Study Scale UoM 11, 12 & 13 FRMP NIS (IBE0601 Rp0022, 2016)

The capture of sites to be screened for each FRMP area was carried out the same way as the methodology for capturing the sites to be screened in the overall CFRAM Study, described above in 3.4.1.1. Each FRMP coverage area (i.e. each Unit of Management) was queried against the shapefiles for all Irish SACs and SPAs in ESRI ArcMap and all sites within 15km of each UoM were captured for screening. The rationale for limiting the scope of the FRMP-scale capture area to 15km has also been previously discussed in 3.4.1.1.

### 3.4.1.3 European Site Screening – Establishment of the ‘Zone of Influence’

For each UoM/FRMP area, every European site captured by the GIS exercise described in 3.4.1.2 above was examined individually.

A ‘Zone of Influence’ was established for each European site. The ‘Zone of Influence’ for each site automatically comprised all areas within 15km of the European site. As hydrological impacts are a possibility, it also included all catchment areas located upstream of the European site to the top of the catchment and any watercourses downstream of the European site. This was achieved by manually examining hydraulic data, specifically EPA datasets for WFD catchment areas, sub-basin catchments and watercourses.

For the reasons listed above in 3.4.1.1, it was not considered necessary at plan level to extend the ‘Zone of Influence’ for coastal sites beyond 15km. At project level, additional data capture such as hydrographic field surveys and hydrodynamic modelling will be used in identifying the extent of the influence of any coastal Scheme and informing the project level AA.

Every AFA (regardless of distance) located within the Zone of Influence for each European site was examined for potential connectivity pathways (both hydraulic and ecological) with the European site.

For purposes of reporting, distances were calculated using the ‘near table’ tool in ArcMap which measured the distance between each European site and the nearest point of each AFA (note: not the nearest point of the AFA’s catchment, but as the AFA itself is likely to be the focus of any FRM activity this was gauged to be the most appropriate site for initiating measurements). The tool produced a spreadsheet listing the distance between each European site and each AFA boundary. All distances quoted in the screening tables have been derived from the “near table” tool.

### 3.4.1.4 European Sites - Selection for Preliminary Screening of Methods & Options

The risk of adverse impact on the European sites was evaluated by examining their location in relation to the AFA boundaries and, in the case of those AFAs at risk of fluvial flooding, the entire extents of their upstream catchments and downstream watercourses.

The relationship between the AFAs (including their upstream catchments and downstream reaches) and each of the European sites was individually reviewed by an experienced assessor. Consideration was given to whether any potential impact pathway between the AFA and the European Site could be identified, either by a hydraulic connection or by virtue of an ecological stepping stone or biodiversity corridor.

As this exercise took place during the 'Preliminary Screening' phase of development of each draft FRMP (see Figure 3.1.3 on page 14), the selection of European sites to be considered for assessment took into account all of the potential FRM methods included in the "long list" of FRM methods shown earlier in Table 3.2.1 (also discussed in more detail in Appendix A) and the potential for *any* of these methods to result in impacts to any of the European sites, either alone or in combination with other methods. The assessment reviewed the potential for:

Direct Impacts, examples of which include (but are not limited to):

- A construction footprint within the boundary of a European site, or
- A construction footprint outside a European site but which may obstruct the passage of a qualifying interest in accessing a European Site.

Indirect Impacts, example of which include (but are not limited to):

- Short term water quality impacts associated with construction works, for example, suspended sediment and sedimentation impacts;
- Changes to existing hydrological and morphological regimes.

It should be noted that the FRMPs are a strategic-level study, and the exact location and design of FRM measures at each AFA has not been decided. Further assessment and quantification of potential impacts will be made at the project stage.

The likely significance of effects on the European sites from the implementation of FRM measures at each of the AFAs, or in their catchments/sub catchments, taking into account their qualifying interests and conservation objectives, was assessed taking into account the source-pathway-receptor model. Site-specific conservation objectives for designated habitats/species, which are included in Appendix C, were taken into account insofar as plan-level details allowed. The project-level assessment will be undertaken based on fully-developed outline designs and site surveys to further consider the attributes and targets of site specific conservation objectives.

The source is defined as the individual element of the plan (at this stage, the source is each/any of the *Methods*, but when each FRMP has been developed, the source will be each of the chosen *Measures*) that has the potential to impact on a European site, its qualifying interests and its conservation objectives. The pathway is defined as the means or route by which a source can migrate to the receptor. For the South Eastern CFRAM Study the pathways for potential impacts are primarily hydraulic, i.e. via watercourses and hydrological catchments, but the potential for linkages by other means (e.g. via an ecological stepping stone or biodiversity corridor) was also examined

during the screening process. The receptor is defined as the European site and its qualifying interests. Each element can exist independently, however a potential impact is created where there is a linkage between the source, pathway and receptor.

NPWS guidance recommends that appropriate assessment screening is informed by the conservation condition of the qualifying interest/s of a European site, however as this screening covers an entire plan area rather than individual projects within the plan, the condition of the qualifying interest was not considered to be relevant, as the purpose of the screening is to identify which European sites may be at risk of experiencing impacts and not, at this stage, assessing the potential significance of any potential impacts.

Each European site was individually reviewed to identify whether there were potential impact pathways, via surface water, groundwater, land or air, evident from FRM methods to be employed at any of the AFAs (or in the catchment of any AFAs) in the South Eastern CFRAM Study area. This included analysing river and stream network, topographic and catchment datasets to ascertain the presence or absence of hydraulic linkages between AFAs and European sites and also examining the potential for impacts on other areas of biodiversity value, such as NHAs (or pNHAs), wildfowl reserves or nature reserves, which may provide a stepping stone between European sites, or wider areas where mobile qualifying interests (e.g. migratory fish or birds) may be affected by changes, outside the boundary of the designated area.

A total of 73 SACs and 23 SPAs were identified as being within, or within 15km of, the South Eastern CFRAM Study area and these were consequently included in the screening process.

Where no apparent linkages or relationships were found between the European site and the AFA or its modelled catchment, a conclusion of “no identifiable impact pathway” was drawn and the site was eliminated from the screening process. Where a connectivity or linkage was possible, the precautionary principle was applied and the site was retained in the screening and was recommended for further assessment (which may include appropriate assessment) at the draft FRMP stage.

The Preliminary Options Reports for each UoM were used to help define the upstream limits of the AFA’s influence. As part of the Optioneering process for each FRMP, Spatial Scales of Assessment (SSAs) have been developed for each UoM (see Chapter 4.2). For some UoMs, the upstream/upcatchment storage FRM method has already been ruled out at this stage and therefore it was possible to rule out potential impacts on European sites from upcatchment FRM methods during the AA screening. In UoMs where upstream/upcatchment FRM methods have not been ruled out, all upcatchment areas were retained in the screening process.

No specific distance limit was applied to downstream impacts and these were reviewed on a case-by-case basis.

The more detailed summaries of the preliminary screening exercise carried out for the European sites considered to be potentially influenced by FRM methods used in UoM11, UoM12 and UoM13 are presented in Appendix B.

The 'Natura 2000 Standard Data Form', 'Conservation Objectives' and 'Site Synopsis' documents for each of the European sites can be found on the National Parks & Wildlife Service website<sup>10</sup>, along with other relevant survey information and documents for each site. For each of the European Sites identified in the screening process, these documents were downloaded and were used to inform the screening.

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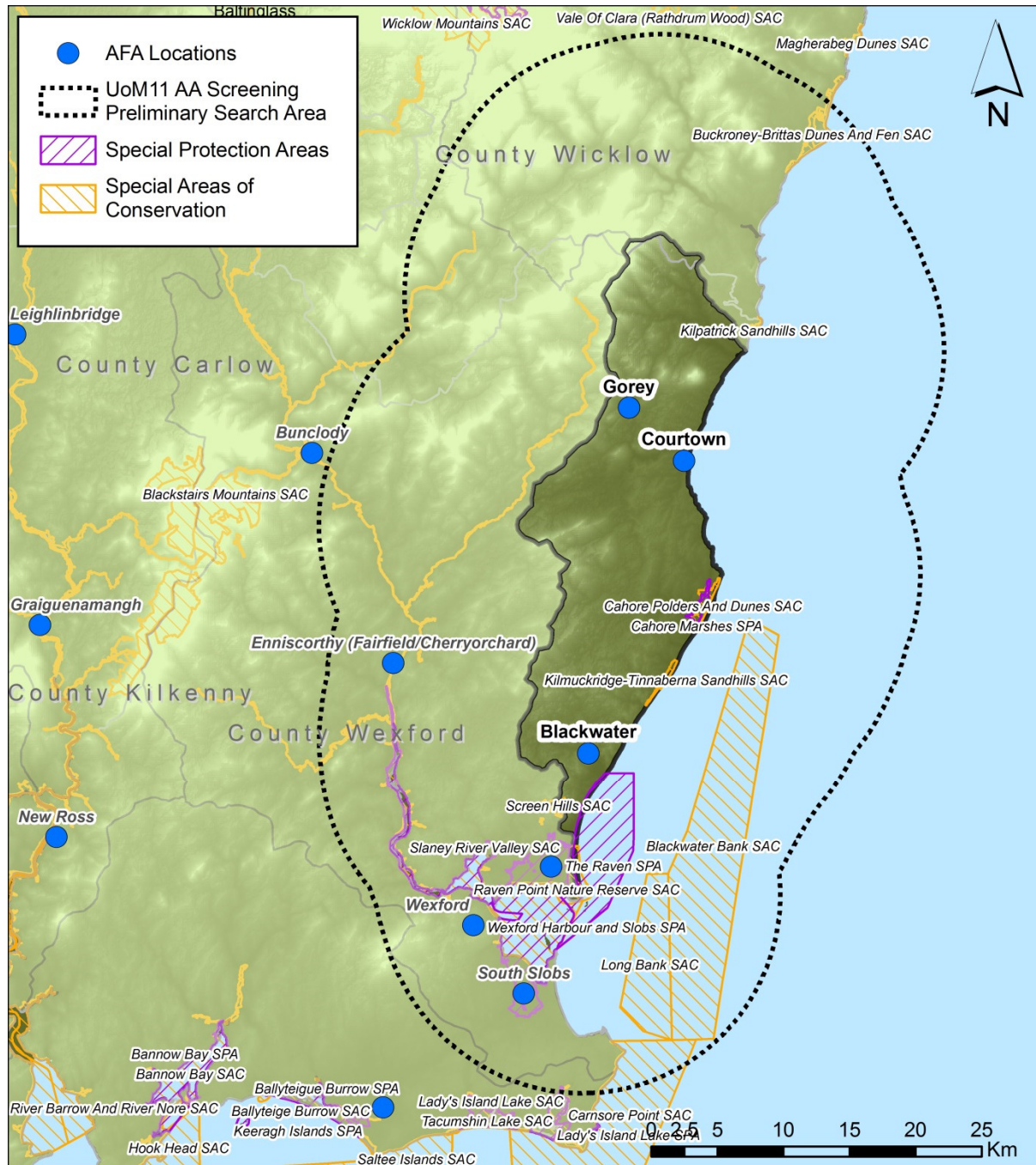
<sup>10</sup> <http://www.npws.ie/protectedsites/> (accessed 5<sup>th</sup> and 6<sup>th</sup> October 2015)



### 3.5 PRELIMINARY SCREENING RESULTS FOR UOM11

There were 15 European sites (11 SACs and four SPAs) found within the Screening Search Area of UoM11 (see Figure 3.5.1).

All European sites in the search area were screened for possible impacts from all FRM methods at all AFAs in UoM11. The results of the screening exercise are summarised in Table 3.5.1 and Table 3.5.2.



**Figure 3.5.1: UoM11 European Sites incorporated in the Preliminary Screening of Methods & Options for the FRMP**

**Table 3.5.1: European Sites screened for UoM11**

	Site Name	Site Code	County	UoM	Water Dependent	AFAs within Zone of Influence of European Site	AFAs that have an Identifiable Impact Pathway to European Site	Screened Out of FRMP AA for UoM11
1	Blackwater Bank SAC	002953	Wexford	Offshore UoM11 & UoM12	-	Blackwater (8.3km), Courtown (10.1km)	None	No
2	Buckroneys-Brittias Dunes And Fen SAC	000729	Wicklow	Outside SE CFRAMS area	Yes	None	None	Yes
3	Cahore Marshes SPA	004143	Wexford	UoM11	-	Blackwater (11.6km), Courtown (6.4km), Gorey (12.9km)	None	Yes
4	Cahore Polders And Dunes SAC	000700	Wexford	UoM11	Yes	Blackwater (11.6km), Courtown (6.4km), Gorey (12.9km)	Courtown	No
5	Carnsore Point SAC	002269	Wexford	UoM12 & UoM13	Yes	None	None	Yes
6	Kilmuckridge-Tinnaberna Sandhills SAC	001741	Wexford	UoM11	Yes	Blackwater (5.0km), Courtown (12.3km)	None	Yes
7	Kilpatrick Sandhills SAC	001742	Wexford	Outside SE CFRAMS area	Yes	Courtown (8.3km), Gorey (7.9km)	Courtown	No
8	Lady's Island Lake SAC	000704	Wexford	UoM13	Yes	None	None	Yes
9	Lady's Island Lake SPA	004009	Wexford	UoM13	-	None	None	Yes
10	Long Bank SAC	002161	Wexford	Offshore UoM12	Yes	Blackwater (9.4km)	None	Yes
11	Raven Point Nature Reserve SAC	000710	Wexford	UoM11 and UoM12	Yes	Blackwater (6.3km),	None	Yes
12	Screen Hills SAC	000708	Wexford	UoM11 and UoM12	Yes	Blackwater (3.2km)	None	Yes

	Site Name	Site Code	County	UoM	Water Dependent	AFAs within Zone of Influence of European Site	AFAs that have an Identifiable Impact Pathway to European Site	Screened Out of FRMP AA for UoM11
13	<b>Slaney River Valley SAC</b>	000781	Carlow, Wicklow, Wexford	UoM12	Yes	<b>Blackwater (9.1km), Courtown (7.1km), Gorey (1.2km)</b>	None	Yes
14	<b>The Raven SPA</b>	004019	Wexford	UoM11 and UoM12	-	<b>Blackwater (1.2km)</b>	Blackwater	No
15	<b>Wexford Harbour and Slobs SPA</b>	004076	Wexford	UoM12	-	<b>Blackwater (5.9km)</b>	Blackwater	No

### 3.5.1 Conclusion of UoM11 Screening Results

The likely significant effects that may arise from the UoM11 FRMP were examined in the context of all factors that could potentially affect the integrity of the European sites within the plan area and beyond.

On the basis of the findings of the Screening for Appropriate Assessment, it was concluded that the FRMP for UoM11:

- i. Is not directly connected with or necessary to the management of a European site; and
- ii. May have significant impacts on a European site

There were a total of 15 European sites (11 SACs and four SPAs) which the identified screening search area for UoM11 and which were used to inform the preliminary options assessment of the draft UoM11 FRMP.

A total of 11 European sites including nine SACs and two SPAs were found to have no identifiable impact pathway associated with the implementation of FRM methods within the AFAs and were thus not at any risk of impacts. These were therefore scoped out as not requiring any further assessment in the NIS. Details of each site and the consideration of potential impacts from FRM methods are presented in Appendix B.

From the information available at the preliminary options assessment stage, it could not be concluded following screening that the UoM11 FRMP would not have significant effects on the European sites identified.

Four European sites (two SACs and two SPAs) were assessed as having the potential to experience an impact from the implementation of FRM methods in the catchments of two of the AFAs in UoM11 – see Table 3.5.2. Further assessment was recommended to assess the significance of these impacts including, where relevant, Stage 2 Appropriate Assessment, following the establishment of the Preferred Option for the FRMP.

**Table 3.5.2: UoM11 AFAs requiring further Assessment (Appropriate Assessment) at FRMP stage**

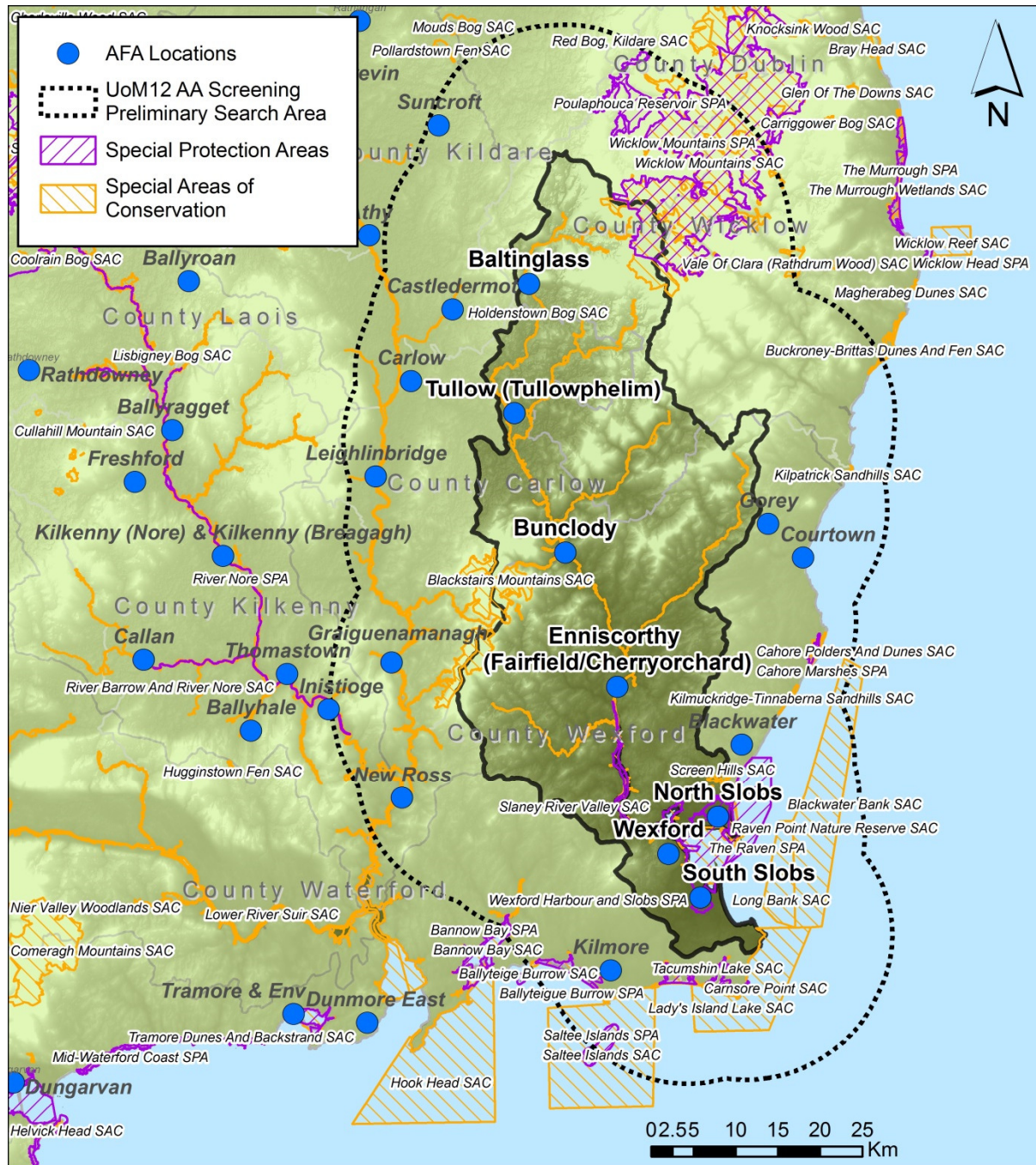
AFA with Identifiable Impact Pathway to European Site	European Site	Site Code
*Blackwater	The Raven SPA	004019
	Wexford Harbour and Slobs SPA	004076
*Courtown	Kilpatrick Sandhills SAC	001742
	Cahore Polders and Dunes SAC	000700

\*subsequently determined during CFRAM Study as an AFA of Low Risk and/or where FRM measures have not been pursued within the South Eastern CFRAM Study (see 4.3.1)

### 3.6 PRELIMINARY SCREENING RESULTS FOR UoM12

There were 32 European sites (21 SACs and 11 SPAs) found within the Screening Search Area of UoM12 (see Figure 3.6.1).

All European sites in the search area were screened for possible impacts from all FRM methods at all AFAs in UoM12. The results of the screening exercise are summarised in Table 3.6.1 and Table 3.6.2.



**Figure 3.6.1: UoM12 European Sites incorporated in the Preliminary Screening of Methods & Options for the FRMP**

**Table 3.6.1: European Sites Screened for UoM12**

	Site Name	Site Code	County	UoM	Water Dependent	AFA's within Zone of Influence of European Site	AFA's that have an Identifiable Impact Pathway to European Site	Screened Out of FRMP AA for UoM12
1	Ballyteige Burrow SAC	000696	Wexford	UoM13	Yes	South Slobs (10.4km), Wexford (14.0km)	None	Yes
2	Ballyteigue Burrow SPA	004020	Wexford	UoM13	-	South Slobs (11.1km), Wexford (14.5km)	None	Yes
3	Bannow Bay SAC	000697	Wexford	UoM13	Yes	Wexford (15.1km)	None	Yes
4	Bannow Bay SPA	004033	Wexford	UoM13	-	None	None	Yes
5	Blackstairs Mountains SAC	000770	Carlow, Wexford	UoM12 and UoM14	Yes	Bunclody (3.6km), Enniscorthy (Fairfield/Cherryorchard) (11.4km), Tullow (Tullowphelim) (14.4km)	None	Yes
6	Blackwater Bank SAC	002953	Wexford	Offshore	-	North Slobs (6.5km), South Slobs (8.6km), Wexford (12.6km)	North Slobs, South Slobs, Wexford	No
7	Buckrone-y-Brittas Dunes And Fen SAC	000729	Wicklow	Outside SECFRAMS area	Yes	None	None	Yes
8	Cahore Marshes SPA	004143	Wexford	UoM11	-	North Slobs (16.8km)	None	Yes
9	Cahore Polders And Dunes SAC	000700	Wexford	UoM11	Yes	North Slobs (16.6km)	None	Yes
10	Carnsore Point SAC	002269	Wexford	UoM12 and UoM13	Yes	North Slobs (10.8km), South Slobs (4.1km) and Wexford (10.2km)	None	Yes
11	Holdenstown Bog SAC	001757	Wicklow	UoM12	Yes	Baltinglass (1.7km), Tullow (Tullowphelim) (10.9km)	None	Yes
12	Kilmuckridge-Tinnaberna Sandhills SAC	001741	Wexford	UoM11	Yes	North Slobs (9.9km)	None	Yes
13	Kilpatrick Sandhills SAC	001742	Wexford	Outside SECFRAMS area	Yes	None	None	Yes

	Site Name	Site Code	County	UoM	Water Dependent	AFAs within Zone of Influence of European Site	AFAs that have an Identifiable Impact Pathway to European Site	Screened Out of FRMP AA for UoM12
14	Lady's Island Lake SAC	000704	Wexford	UoM13	Yes	North Slobs (13.8km), South Slobs (4.5km), Wexford (10.5km)	None	Yes
15	Lady's Island Lake SPA	004009	Wexford	UoM13	-	North Slobs (13.9km), South Slobs (4.5km), Wexford (10.5km)	None	Yes
16	Long Bank SAC	002161	Wexford	Offshore	Yes	North Slobs (4.4km), South Slobs (4.9km ), Wexford (9.4km)	North Slobs, South Slobs, Wexford	No
17	Poulaphouca Reservoir SPA	004063	Kildare, Wicklow	Outside SECFRAMS Area	-	None	None	Yes
18	Raven Point Nature Reserve SAC	000710	Wexford	UoM11	Yes	North Slobs (0.0km), South Slobs (5.1km), Wexford (4.7km)	North Slobs, South Slobs, Wexford	No
19	Red Bog, Kildare SAC	000397	Kildare	Outside SECFRAMS area	Yes	None	None	Yes
20	River Barrow And River Nore SAC	002162	Carlow, Kildare, Kilkenny, Laois, Wexford	UoM14 and UoM15	Yes	Baltinglass (6.4km), Bunclody (9.9km), Enniscorthy (Fairfield/Cherryorchard) (13.9km), Tullow (Tullowphelim) (11.9km)	None	Yes
21	River Nore SPA	004233	Kilkenny	UoM15	-	None	None	Yes
22	Saltee Islands SAC	000707	Wexford	Offshore UoM13	Yes	South Slobs (8.2km), Wexford (13.1km)	None	Yes
23	Saltee Islands SPA	004002	Wexford	Offshore UoM13	-	South Slobs (14.2km)	None	Yes
24	Screen Hills SAC	000708	Wexford	UoM11 and UoM12	Yes	Enniscorthy (Fairfield/Cherryorchard) (12.1km), North Slobs (0.9km), South Slobs (10.0km), Wexford (7.2km)	None	Yes

	Site Name	Site Code	County	UoM	Water Dependent	AFAs within Zone of Influence of European Site	AFAs that have an Identifiable Impact Pathway to European Site	Screened Out of FRMP AA for UoM12
25	Slaney River Valley SAC	000781	Carlow, Wicklow, Wexford	UoM12	Yes	Baltinglass (0.0km), Bunclody (0.0km), Enniscorthy (Fairfield/Cherryorchard) (0.0km), North Slobs (0.0km), South Slobs (0.0km), Tullow (Tullowphelim) (0.0km), Wexford (0.0km)	Baltinglass, Bunclody, Enniscorthy (Fairfield/Cherryorchard), North Slobs, South Slobs, Tullow (Tullowphelim), Wexford	No
26	Tacumshin Lake SAC	000709	Wexford	UoM13	Yes	North Slobs (16.0km), South Slobs (4.9km), Wexford (9.8km)	None	Yes
27	Tacumshin Lake SPA	004092	Wexford	UoM13	-	South Slobs (5.2km), Wexford (10.1km)	None	Yes
28	The Raven SPA	004019	Wexford	UoM11 and UoM12	-	Enniscorthy (Fairfield/Cherryorchard) (14.6km), North Slobs (0.0km), South Slobs (2.2km), Wexford (4.1km)	Enniscorthy (Fairfield/Cherryorchard), North Slobs, South Slobs, and Wexford	No
29	Vale Of Clara (Rathdrum Wood) SAC	000733	Wicklow	Outside SECFRAMS area	Yes	None	None	Yes
30	Wexford Harbour and Slobs SPA	004076	Wexford	UoM12	-	Enniscorthy (Fairfield/Cherryorchard) (0.0km), North Slobs (0.0km), South Slobs (0.0km), Wexford (0.0km)	Enniscorthy (Fairfield/Cherryorchard), North Slobs, South Slobs, and Wexford	No
31	Wicklow Mountains SAC	002122	Wicklow	UoM09, UoM10 and UoM12	Yes	Baltinglass (10.3 km), Tullow (Tullowphelim) (20.0km)	None	Yes
32	Wicklow Mountains SPA	004040	Wicklow	UoM09, UoM10 and UoM12	-	Baltinglass (11.4km), Tullow (Tullowphelim) (21.9km)	None	Yes



### 3.6.1 Conclusion of UoM12 Preliminary Screening Results

The likely significant effects that may arise from the UoM12 FRMP were examined in the context of all factors that could potentially affect the integrity of the European sites within the plan area and beyond.

On the basis of the findings of the Screening for Appropriate Assessment, it was concluded that the FRMP for UoM12:

- i. Is not directly connected with or necessary to the management of a European site; and
- ii. May have significant impacts on a European site

There are a total of 32 European sites (21 SACs and 11 SPAs) which are within the identified screening search area for UoM12 and which were used to inform the preliminary options assessment of the draft UoM12 FRMP.

A total of 26 European sites including 17 SACs and nine SPAs were found to have no identifiable impact pathway associated with the implementation of FRM methods within the AFAs and were thus not at any risk of impacts. These were therefore scoped out as not requiring any further assessment in the NIS. Details of each site and the consideration of potential impacts from FRM methods are presented in Appendix B

From the information available at the preliminary options assessment stage, it could not be concluded following screening that the UoM12 FRMP would not have significant effects on the European sites identified.

Six European sites (four SACs and two SPAs) were assessed as having the potential to experience an impact from the implementation of FRM methods in the catchments of one or more of seven of the AFAs in UoM12 - see Table 3.6.2. Further assessment was recommended to assess the significance of these impacts including, where relevant, Stage 2 Appropriate Assessment, following the establishment of the Preferred Option for the FRMP.

**Table 3.6.2: UoM12 AFAs requiring Further Assessment (Appropriate Assessment) at FRMP stage**

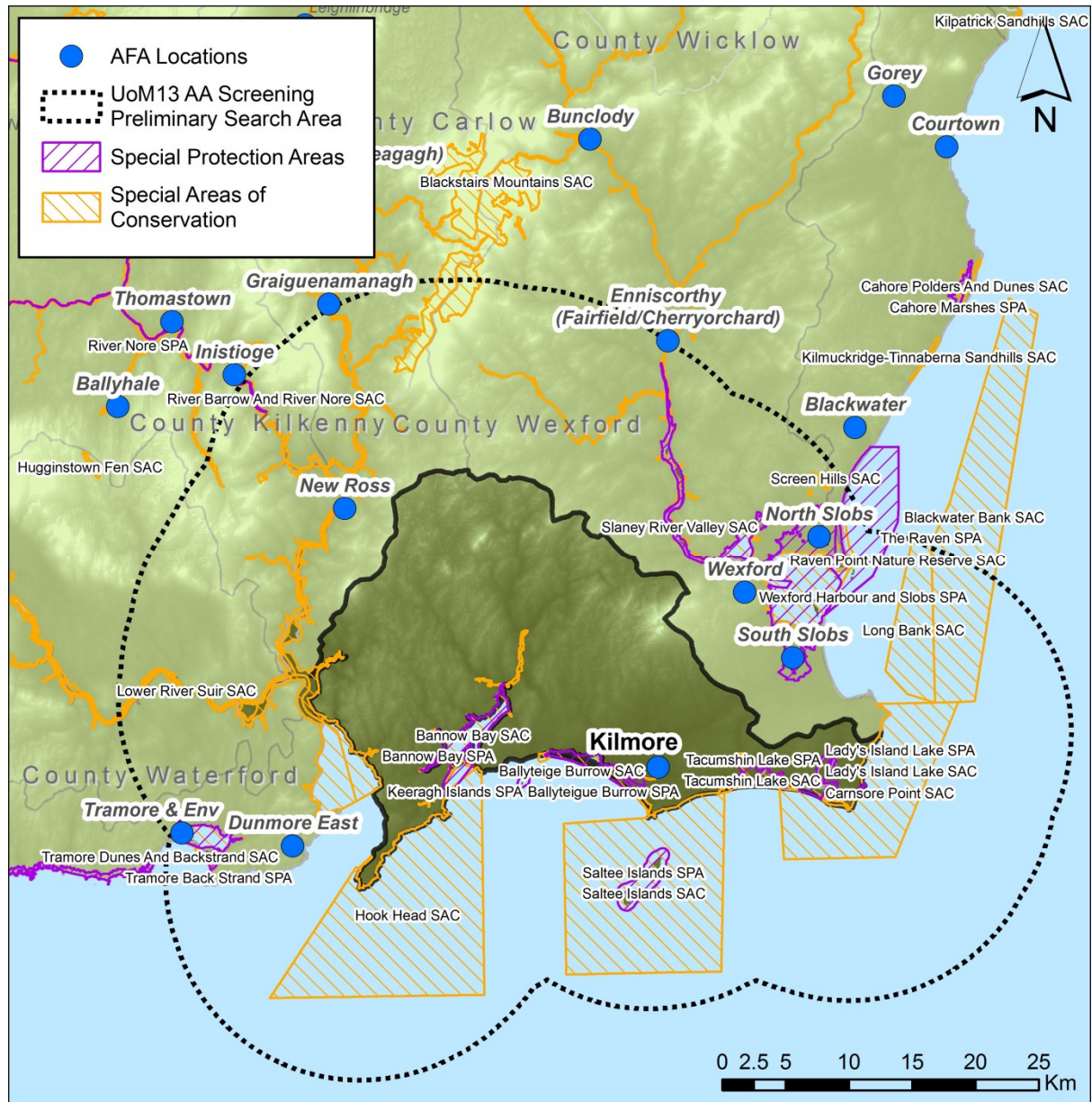
<b>AFA with Identifiable Impact Pathway to European Site</b>	<b>European Site</b>	<b>Site Code</b>
<b>*North Slobs</b>	Blackwater Bank SAC Long Bank SAC Raven Point Nature Reserve SAC Slaney River Valley SAC The Raven SPA Wexford Harbour and Slobs SPA	002953 002161 000710 000781 004019 004076
<b>*South Slobs</b>	Blackwater Bank SAC Long Bank SAC Raven Point Nature Reserve SAC Slaney River Valley SAC The Raven SPA Wexford Harbour and Slobs SPA	002953 002161 000710 000781 004019 004076
<b>Wexford</b>	Blackwater Bank SAC Long Bank SAC Raven Point Nature Reserve SAC Slaney River Valley SAC The Raven SPA Wexford Harbour and Slobs SPA	002953 002161 000710 000781 004019 004076
<b>Baltinglass</b>	Slaney River Valley SAC	000781
<b>*Bunclody</b>	Slaney River Valley SAC	000781
<b>*Enniscorthy (Fairfield/Cherryorchard)</b>	Slaney River Valley SAC The Raven SPA Wexford Harbour and Slobs SPA	000781 004019 004076
<b>*Tullow (Tullowphelim)</b>	Slaney River Valley SAC	000781

\*subsequently determined during CFRAM Study as an AFA of Low Risk and/or where FRM measures have not been pursued within the South Eastern CFRAM Study (see 4.3.1)

### 3.7 PRELIMINARY SCREENING RESULTS FOR UOM13

There were 26 European sites (16 SACs and 10 SPAs) found within the Screening Search Area of UoM13 (see Figure 3.7.1).

All European sites in the search area were screened for possible impacts from all FRM methods at all AFAs in UoM13. The results of the screening exercise are summarised in Table 3.8 and Table 3.9.



**Figure 3.7.1: UoM13 European Sites incorporated in the Preliminary Screening of Methods & Options for the FRMP**

**Table 3.7.1: European Sites screened for UoM13**

	Site Name	Site Code	County	UoM	Water Dependent	AFAs within Zone of Influence of European Site	AFAs that have an Identifiable Impact Pathway to European Site	Screened Out of FRMP AA for UoM13
1	Ballyteige Burrow SAC	000696	Wexford	UoM13	Yes	Kilmore (0.0km)	Kilmore	No
2	Ballyteigue Burrow SPA	004020	Wexford	UoM13x	-	Kilmore (0.0km)	Kilmore	No
3	Bannow Bay SAC	000697	Wexford	UoM13	Yes	Kilmore (7.5km)	Kilmore	No
4	Bannow Bay SPA	004033	Wexford	UoM13	-	Kilmore (7.5km)	Kilmore	No
5	Blackstairs Mountains SAC	000770	Wexford	UoM12 and UoM14	Yes	None	None	Yes
6	Blackwater Bank SAC	002953	Wexford	Offshore UoM11 & UoM12	-	None	None	Yes
7	Carnsore Point SAC	002269	Wexford	UoM12 and UoM13	Yes	Kilmore (8.1km)	None	Yes
8	Hook Head SAC	000764	Wexford	UoM13	Yes	Kilmore (9.4km)	Kilmore	No
9	Keeragh Islands SPA	004118	Wexford	uoM13	-	Kilmore (5.8km)	None	Yes
10	Lady's Island Lake SAC	000704	Wexford	UoM13	Yes	Kilmore (9.3km)	None	Yes
11	Lady's Island Lake SPA	004009	Wexford	UoM13	-	Kilmore (9.7km)	None	Yes
12	Long Bank SAC	002161	Wexford	Offshore UoM12	Yes	None	None	Yes
13	Lower River Suir SAC	002137	Kilkenny, Waterford	UoM16	Yes	None	None	Yes
14	Raven Point Nature Reserve SAC	000710	Wexford	UoM11	Yes	None	None	Yes

	Site Name	Site Code	County	UoM	Water Dependent	AFAs within Zone of Influence of European Site	AFAs that have an Identifiable Impact Pathway to European Site	Screened Out of FRMP AA for UoM13
15	River Barrow And River Nore SAC	002162	Carlow, Kildare, Kilkenny, Laois, Wexford	UoM14 and UoM15	Yes	None	None	Yes
16	River Nore SPA	004233	Kilkenny	UoM15	-	None	None	Yes
17	Saltee Islands SAC	000707	Wexford	Offshore UoM13	Yes	Kilmore (0.5km)	Kilmore	No
18	Saltee Islands SPA	004002	Wexford	Offshore UoM13		Kilmore (3.3km)	Kilmore	No
19	Screen Hills SAC	000708	Wexford	UoM11 and UoM12	Yes	None	None	Yes
20	Slaney River Valley SAC	000781	Carlow, Wicklow, Wexford	UoM12	Yes	Kilmore (12.8km)	None	Yes
21	Tacumshin Lake SAC	000709	Wexford	UoM13	Yes	Kilmore (3.5km)	Kilmore	No
22	Tacumshin Lake SPA	004092	Wexford	UoM13	-	Kilmore (4.4km)	Kilmore	No
23	The Raven SPA	004019	Wexford	UoM11 and UoM12	-	None	None	No
24	Tramore Back Strand SPA	004027	Waterford	UoM17	-	None	None	Yes
25	Tramore Dunes And Backstrand SAC	000671	Waterford	UoM17	Yes	None	None	Yes
26	Wexford Harbour and Slobs SPA	004076	Wexford	UoM12	-	None	None	Yes

### 3.7.1 Conclusion of UoM13 Screening Results

The likely significant effects that may arise from the UoM13 FRMP were examined in the context of all factors that could potentially affect the integrity of the European sites within the plan area and beyond.

On the basis of the findings of the Screening for Appropriate Assessment, it was concluded that the FRMP for UoM13:

- i. Is not directly connected with or necessary to the management of a European site; and
- ii. May have significant impacts on a European site

There are a total of 26 European sites (16 SACs and 10 SPAs) which are within the identified screening search area for UoM13 and which were used to inform the preliminary options assessment of the draft UoM13 FRMP.

A total of 17 European sites including 11 SACs and six SPAs were found to have no identifiable impact pathway associated with the implementation of FRM methods within the AFAs and were thus not at any risk of impacts. These were therefore scoped out as not requiring any further assessment in the NIS. Details of each site and the consideration of potential impacts from FRM methods are presented in Appendix B.

From the information available at the preliminary options assessment stage, it could not be concluded following screening that the UoM13 FRMP would not have significant effects on the European sites identified.

Nine European sites (five SACs and four SPAs - see Table 3.7.2) were assessed as having the potential to experience an impact from the implementation of FRM methods in the catchment of Kilmore AFA. Stage 2 Appropriate Assessment is required to assess the significance of these impacts. Further assessment was recommended to assess the significance of these impacts including, where relevant, Stage 2 Appropriate Assessment, following the establishment of the Preferred Option for the FRMP.

**Table 3.7.2: UoM13 AFAs requiring Further Assessment (Appropriate Assessment) at FRMP stage**

AFA with Identifiable Impact Pathway to European Site	European Site	Site Code
*Kilmore	Ballyteige Burrow SAC	000696
	Ballyteigue Burrow SPA	004020
	Bannow Bay SAC	000697
	Bannow Bay SPA	004033
	Hook Head SAC	000764
	Saltee Islands SAC	000707
	Saltee Islands SPA	004002
	Tacumshin Lake SAC	000709
	Tacumshin Lake SPA	004092

\*subsequently determined during CFRAM Study as an AFA of Low Risk and/or where FRM measures have not been pursued within the South Eastern CFRAM Study (see 4.3.1)

## 4 SUMMARY OF PROPOSED MEASURES

This Chapter provides a summary of the measures that are proposed for inclusion in the FRMP for UoM11, UoM12 and UoM13.

### 4.1 UOM-SCALE FLOOD MANAGEMENT MEASURES

There are certain prevention and preparedness measures related to flood risk management that form part of wider Government policy. These measures should be applied across the whole UoM, including all AFAs. These methods are summarised below and described in Sections 4.1.1 to 4.1.13. These strategic alternatives that will be implemented on a national scale are non-structural, with no actual physical action to take place in a specific geographic location following implementation of the FRMP.

Those non-structural/policy-based measures shown below will have no physical outcome or are an existing process and so they cannot be assessed for impacts in this NIS. The next stage of development of these future plans and policies would be environmentally neutral, however in some cases they may need taken into account for in-combination and cumulative impacts.

- Sustainable Planning and Development Management - Proper application of the Guidelines on the Planning System and Flood Risk Management by the planning authorities;
- Sustainable Urban Drainage Systems (SuDS);
- Voluntary Home Relocation;
- Local Adaptation Planning;
- Land Use Management and Natural Flood Risk Management Measures;
- Maintenance of Arterial Drainage Schemes and Existing Flood Schemes;
- Maintenance of Drainage Districts and Existing Flood Schemes;
- Maintenance of Channels Not Part of a Scheme
- Flood Forecasting;
- Review of Emergency Response Plans for Severe Weather;
- Individual and Community Resilience;
- Individual Property Protection;
- Flood-Related Data Collection, and
- Minor Works Scheme.

As described in Chapter 3.2 the 'Do-Nothing' scenario was considered from the outset as one of the FRM methods considered. Each area to be assessed from UoM to AFA scale has therefore had the Do-Nothing method assessed as a potential alternative to the Plan. In general, this has been ruled out as an option however, as it would not achieve the stated objectives of the FRMP to manage flood risk within the UoM.

#### 4.1.1 Sustainable Planning and Development Management

The proper application of the Guidelines on the Planning System and Flood Risk Management by the planning authorities is essential to avoid inappropriate development in flood prone areas, and hence avoid unnecessary increases in flood risk into the future. The flood mapping provided as part of the FRMP will facilitate the application of the Guidelines. The Planning Authorities will ensure proper application of the Guidelines on the Planning System and Flood Risk Management (DECLG/OPW,



2009) in all planning and development management processes and decisions in order to support sustainable development. In UoMs 11, 12 and 13 this option is considered environmentally neutral as it is a policy option to prevent inappropriate development. This policy cannot be assessed for impacts.

#### **4.1.2 Sustainable Urban Drainage Systems (SuDS)**

Sustainable Urban Drainage Systems (SuDS) can play a role in reducing and managing run-off from new developments to surface water drainage systems, reducing the impact of such developments on flood risk downstream, as well as improving water quality and contributing to local amenity. In accordance with the Guidelines on the Planning System and Flood Risk Management (DECLG/OPW, 2009), planning authorities should seek to reduce the extent of hard surfacing and paving and require the use of sustainable drainage techniques. In UoMs 11, 12 and 13 this option is considered environmentally neutral as it is a policy option to improve the sustainability of future development. This policy cannot be assessed for impacts.

#### **4.1.3 Voluntary Home Relocation**

In extreme circumstances, the flood risk to an area where there is already some development may be such that continuing to live in the area is not acceptable to the owners, and it may not be viable or acceptable to take measures to reduce the flooding of the area. The home-owner may choose to relocate.

The Inter-Departmental Flood Policy Coordination Group will consider the policy options around voluntary home relocation for consideration by Government.

This method is applicable throughout UoMs 11, 12 and 13. This option is considered environmentally neutral as it is a potential assessment of policy options. This policy cannot be assessed for impacts in the NIS.

#### **4.1.4 Local Adaptation Planning**

The consultation document on the NCCAF recognises that local authorities also have an important role to play in Ireland's response to climate adaptation. Given the potential impacts of climate change on flooding and flood risk, the local authorities should take fully into account these potential impacts in the performance of their functions, in particular in the consideration of spatial planning and the planning and design of infrastructure, in line with the Local Authority Adaptation Strategy Development Guidelines (EPA, 2016).

This method is applicable throughout UoMs 11, 12 and 13. The option is considered environmentally neutral as it is a policy option to prepare Adaptation Plans at local scale. This option is therefore not included in the appropriate assessment. This policy cannot be assessed for impacts in the NIS.

#### **4.1.5 Land Use Management and Natural Flood Risk Management Measures**

The OPW is liaising with the EPA on the potential impact of WFD measures on flood risk, which are typically neutral (no impact), or may have some benefit in reducing runoff rates and volumes (e.g.,

through agricultural measures such as minimising soil compaction, contour farming or planting, or the installation of field drain interception ponds). The OPW will continue to work with the EPA and other agencies implementing the WFD to identify, where possible, measures that will have benefits for both WFD and flood risk management objectives, such as natural water retention measures, and also biodiversity and potentially other objectives. It is anticipated that this is most likely to be achieved in areas where phosphorous loading is a pressure on ecological status in a sub-catchment where there is also an identified potentially significant flood risk (i.e., an AFA). This coordination will also address measures that may otherwise cause conflict between the objectives of the two Directives.

This method is applicable throughout UoMs 11, 12 and 13. The option has the potential for both positive and negative environmental impacts; however, the next stage of implementation of land use management and natural flood management following from the FRMP will be further assessment and feasibility studies. At this early stage in its development the policy cannot be assessed for impacts in the NIS.

#### **4.1.6 Maintenance of Arterial Drainage Schemes and Existing Flood Relief Schemes**

Within UoM11 the OPW has implemented and maintains the Owenavorrhagh Arterial Drainage Scheme which was undertaken by the OPW between 1968 and 1970, under the 1945 Arterial Drainage Act. The OPW continues to have statutory responsibility for inspection and maintenance of the Scheme, which includes 62km of channel. The primary focus of arterial drainage schemes is not for flood relief but for the improvement of agricultural land. Whilst not intended as a flood alleviation scheme, the arterial drainage works have undoubtedly reduced the fluvial flood risk in certain parts of UoM11.

There are no arterial drainage schemes in UoM12. UoM13 has one Arterial Drainage Scheme, the Ballyteigue (Kilmore) Scheme. This scheme was minor in terms of acreage of benefitting land and involved river widening and deepening. In the case of Kilmore, construction of flood embankments and pumping was also included. The long-term effect of the scheme was to increase channel conveyance capacity.

The OPW have undertaken separate environmental and appropriate assessments of the maintenance of their arterial drainage schemes. Where relevant, the appropriate assessment for the maintenance of arterial drainage schemes in the UoM has been taken into account for cumulative or in-combination impacts with the FRMP.

#### **4.1.7 Maintenance of Drainage Districts and Existing Flood Relief Schemes**

Drainage Districts represent areas where the Local Authorities have responsibilities to maintain watercourse channels and therefore contribute to maintaining the existing regime.

There is one Drainage District within UoM11: the Cahore Drainage District.

There are two Drainage Districts within UoM12: the Carrigower Drainage District and the Sow Drainage District.

There are no Drainage Districts within UoM13.

None of these Drainage Districts are located directly on the key watercourses where fluvial and coastal flood risk is being investigated. As such, the activities within Drainage Districts are not considered to significantly contribute to flood risk management in UoMs 11 and 12, whilst they do contribute to the maintenance of the existing flow regime in other parts of UoMs 11 and 12

The Local Authorities have a statutory duty to maintain the Drainage Districts, and the Final FRMPs do not amend these responsibilities to provide additional flood relief. The local authorities shall maintain the Drainage Districts in their jurisdictional area in accordance with legislation. Local Authorities should also maintain those flood relief schemes for which they have maintenance responsibility. Where relevant, the maintenance of drainage districts or existing flood relief schemes in the UoMs will be taken into consideration for cumulative or in combination impacts with measures proposed in the FRMPs in the appropriate assessment.

#### **4.1.8 Flood Forecasting**

A Government decision was taken on the 5th January 2016 to establish a national flood forecasting and warning service. Flood Forecasting and Warning was assessed as a method of flood risk management throughout UoMs 11, 12 and 13. This method would utilise data from the existing hydrometric and meteorological networks to develop predictive models enabling alerts/warnings to be issued in sufficient time to flood prone receptors for action to be taken to manage the consequences of the flood event.

The FRMP recommends progression of a Flood Forecasting and Warning System, comprising a forecasting model system and the use of gauging stations, to project-level development and assessment for refinement and preparation for planning / Exhibition and, as appropriate, implementation. This policy cannot be assessed for impacts in the NIS.

#### **4.1.9 Review of Emergency Response Plans for Severe Weather**

The local authorities should review their severe weather emergency response plans with respect to flood events, making use of the information on flood hazards and risks provided through the CFRAM Programme and this FRMP, once finalised, and then regularly review the plans taking account of any changes or additional information, as appropriate. The local authorities should update and then regularly review their severe weather emergency response plans with respect to flood events, making use of all available information on flood hazards and risks.

This method is applicable throughout UoMs 11, 12 and 13. The option is considered environmentally neutral as it is a policy option to review Emergency Response Plans. This policy cannot be assessed for impacts in the NIS.

#### **4.1.10 Individual and Community Resilience**

While the State, through the OPW, local authorities and other public bodies can take certain actions to reduce and manage the risk of flooding, individual home-owners, businesses and farmers also have a responsibility to manage the flood risk to themselves and their property and other assets to reduce damages and the risk to personal health in the event of a flood. All people at flood risk should make themselves aware of the potential for flooding in their area, and take long-term and

short-term preparatory actions to manage and reduce the risk to themselves and their properties and other assets.

This method is applicable throughout UoMs 11, 12 and 13. The option is considered environmentally neutral as it is a policy option to promote resilience to flooding. This policy cannot be assessed for impacts in the NIS.

#### **4.1.11 Individual Property Protection**

Individual Property Protection can be effective in reducing the damage to the contents, furniture and fittings in a house or business, but are not applicable in all situations (for example, they may not be suitable in areas of deep or prolonged flooding, or for some types of property with pervious foundations and flooring). Property owners considering the use of such method should seek the advice of an appropriately qualified expert on the suitability of the measures for their property. The Inter-Departmental Flood Policy Review Group will consider the policy options around installation of Individual Property Protection measures for consideration by Government.

The FRMP does not specifically address the management of local flood problems outside of the AFAs. Where this option is applicable within an AFA, appropriate assessment has been carried out.

#### **4.1.12 Flood-Related Data Collection**

Ongoing collection of hydrometric and meteorological data, and data on flood events as they occur, will help us to continually improve our preparation for, and response, to flooding. The OPW, local authorities / EPA and other organisations collecting hydro-meteorological data should continue to do so, and post-event event flood data should continue to be collected, to improve future flood risk management.

At this early stage in its development the policy cannot be assessed for impacts in the NIS. Best practice must be undertaken in the planning and installation of new gauges including, where relevant, appropriate assessment of new gauge installations at the project planning stage.

#### **4.1.13 Minor Works Scheme**

The Minor Flood Mitigation Works and Coastal Protection Scheme (the 'Minor Works Scheme') is an administrative scheme operated by the OPW under its general powers and functions to support the local authorities through funding of up to €750k (subject to review) to address qualifying local flood problems with local solutions. The OPW will continue the Minor Works Scheme until such time as it is deemed no longer necessary or appropriate.

This method is applicable throughout UoMs 11, 12 and 13. This option has the potential for both positive and negative environmental impacts; however the next stage of implementation of minor works will be outside the FRMPs and the CFRAM studies. Where available, information on projects being currently progressed on the minor works scheme will be taken into consideration for cumulative or in combination impacts with measures proposed in the FRMPs in the appropriate assessment. Where relevant, future schemes undertaken under the Minor Works Scheme during the lifetime of each FRMP should be assessed for cumulative or in-combination impacts with the FRMP.

## 4.2 SUB-CATCHMENT MEASURES

### 4.2.1 UoM11

The sub-catchment Spatial Scale of Assessment (SSA) refers to the catchment of the principal river on which multiple AFAs sit. In the UoM11 FRMP, no sub-catchment SSA has been identified.

### 4.2.2 UoM12

#### 4.2.3 Slaney Sub-Catchment

One sub-catchment SSA was identified in UoM12, the Upper Slaney sub-catchment. During screening, Storage and Improvement of Channel Conveyance methods were examined, but were found to be technically unfeasible. A tidal barrier across Wexford Harbour was also screened and although found to be technically feasible, it was not economically viable. Consequently as no feasible Catchment/Sub-Catchment methods were identified, no identification of measures or MCA appraisal has taken place for any of the UoM11, UoM12 or UoM13 FRMPs. For additional detail on the Sub-Catchment SSA screening in UoM12 please refer to Appendix E of the UoM12 FRMP.

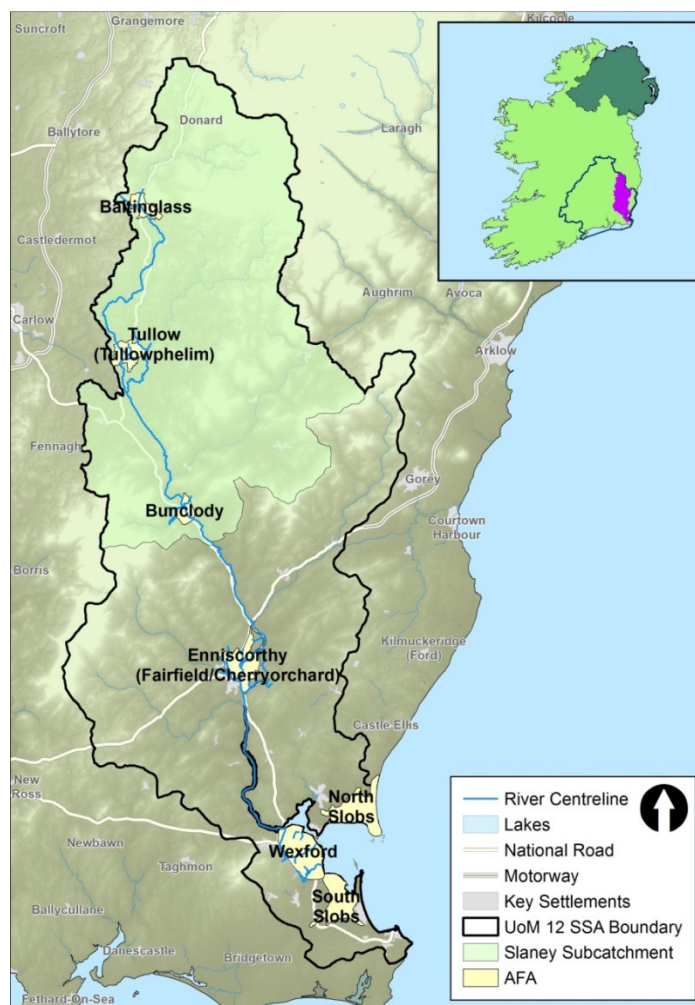


Figure 4.2.1: UoM12 Spatial Scales of Assessment showing Upper Slaney Sub-catchment

#### **4.2.4 UoM13**

No sub-catchment SSA has been identified in the UoM13 FRMP.

### **4.3 AFA-SCALE MEASURES**

#### **4.3.1 Communities (AFAs) of Low Risk**

The AFAs in each UoM were originally determined through the Preliminary Flood Risk Assessment (PFRA), as described in Chapter 1.1.1. The flood hazard and risk analysis undertaken through the South Eastern CFRAM Project has been significantly more detailed than the analysis undertaken for the PFRA. For certain AFAs, this more detailed analysis has determined that there is in fact currently a low level of flood risk to the community from rivers and/or the sea. In such cases, the development of flood risk management measures aimed specifically at managing the risk in such AFAs has not been pursued. The UoM-level measures will however typically still be relevant and applicable.

During the CFRAM study it was determined that the level of risk is low for nine AFAs in UoM11, UoM12 and UoM13. As a consequence, Optioneering was not carried out for these AFAs and no preferred measures have been put forward in each FRMP. Consequently, it is not necessary to conduct an appropriate assessment for these AFAs. The AFAs that have not been taken forward for optioneering in the FRMP are summarised in Chapter 4.3.1.1 to 4.3.1.9.

The level of risk in the AFAs where the CFRAM process has determined that there is currently a low level of flood risk will be reviewed, along with all areas, as part of the review of the PFRA (see Chapter 1.1.1). This includes AFAs where the current level of risk may be low, but where the level of risk may increase in the future due to the potential impacts of climate change and so action in the future may be required to manage such impacts.

##### **4.3.1.1 Blackwater AFA**

Fluvial flooding occurs during a 1% AEP event due to Blackwater Bridge restricting flow. Historical flooding events also suggest that this bridge is susceptible to blockage during fluvial flood events. There are four residential and two business properties at flood risk in this area during free flow conditions in a 1% AEP event, along with three regional roads. It has been assessed that the level of risk in Blackwater is currently low. Therefore optioneering has not been undertaken and the existing maintenance regime should continue in order to maintain the current standard of protection.

##### **4.3.1.2 Courtown AFA**

In Courtown, flooding occurs during 1% AEP fluvial events and 0.5% AEP coastal events. However, no properties are at flood risk and as a result this has been agreed as a low risk AFA. Therefore optioneering has not been undertaken and the existing maintenance regime should continue in order to maintain the current standard of protection.

#### 4.3.1.3 Gorey AFA

There are two discrete areas of flooding in Gorey, both caused by insufficient channel capacity during a 1% AEP fluvial flood event. There are seven residential properties at risk in these areas along with several local roads. This AFA has been agreed as a low risk AFA and thus the FRMP has concluded that the existing maintenance regime should continue in order to maintain the current standard of protection.

#### 4.3.1.4 Bunclody AFA

There are two areas which are at risk of flooding during a 1% AEP fluvial flood event. One area of land is subject to out of bank flooding due to insufficient channel capacity on the River Clody and Mill Race. The other area is again subject to flooding due to insufficient channel capacity however this time from the River Slaney. As these flooded areas can influence one another, they are considered complex.

There are three residential and five non-residential properties which are affected by fluvial flooding during a 1% AEP event. A local, regional and a national road are all located within the floodplains. Other social infrastructure assets and utilities such as a fire station and electricity sub-station are also at risk. This AFA has been agreed as a low risk AFA and consequently the FRMP has concluded that the existing maintenance regime should continue in order to maintain the current standard of protection.

#### 4.3.1.5 Enniscorthy (Fairfield & Cherry Orchard) AFA

Enniscorthy (Fairfield & Cherry Orchard) is affected by fluvial flooding during a 1% AEP event however, no properties are at flood risk for free flow condition. There are some local roads situated within the floodplain along with three social amenity sites. Overall, it has been agreed that Enniscorthy (Fairfield & Cherry Orchard) is a low risk AFA and so optioneering has not been undertaken. Consequently, the FRMP has concluded that the existing maintenance regime should continue in order to maintain the current standard of protection.

The flood risk from the River Slaney at Enniscorthy is being managed by the Enniscorthy Flood Defence Scheme ([www.enniscorthyfds.ie](http://www.enniscorthyfds.ie)). The Flood Defence Scheme has had an environmental impact assessment undertaken which will, however, be reviewed for potential in-combination or cumulative impacts with the FRMP. There are no additional FRM options being proposed in the FRMP for UoM12.

#### 4.3.1.6 North Slob

Coastal flooding occurs in an extensive area of land during the 0.5% AEP event due to inundation from the coast along the south of the Slob land, if the embankment is not maintained. The embankment is considered as having protection of 0.1% AEP. It is maintained by landowners who ensure it remains intact and to a sufficient height to prevent coastal flooding. In the present day 0.5% AEP event there are no properties at risk and therefore the North Slob AFA is considered to be at low risk during the present day 0.5%AEP coastal event. The FRMP has concluded that the existing maintenance regime should continue to maintain the current standard of protection.

#### 4.3.1.7 South Slob

Coastal flooding occurs in the South Slob AFA during a 0.5% AEP event due to coastal inundation. One non-residential property and some local roads are at flood risk during this event due to insufficient capacity of drainage channels. An extensive embankment along the north of the AFA provides protection up to 10% AEP to a large area of land which includes a number of properties. Local land owners are currently responsible for the maintenance of the embankment, including ensuring it is at a sufficient height to prevent coastal inundation. Optioneering which was undertaken found that maintain the existing regime was the best method for coastal protection in this area.

The South Slob AFA is considered to be at low risk during the present day 0.5%AEP coastal event. However the South Slob AFA contains internationally designated freshwater habitats that would be lost should coastal inundation occur.

#### 4.3.1.8 Tullow

Tullow is affected by fluvial flooding in a discrete area during a 1% AEP event. There are no residential or non-residential properties at risk of flooding during a 1% AEP event, although five roads; local, regional and national are at risk. This AFA has been agreed as a low risk AFA, consequently optioneering has not been undertaken, and so the FRMP has concluded that the existing maintenance regime of the flood defence scheme should continue in order to maintain the current standard of protection.

#### 4.3.1.9 Kilmore

Kilmore AFA is subject to coastal flooding during a 0.5% AEP event. No properties are at risk of flooding, although five local roads are located within the floodplain. Currently there are a series of flood defence embankments and walls of various standards of protection, to the west and north of the AFA. There are a number of SAC and SPA designations in the area which could be directly or indirectly impacted if the current flood defences were to deteriorate. Given the scale of defences and the likelihood of a future breach, the area is considered complex. Kilmore has been agreed as a low risk AFA, consequently optioneering has not been undertaken, and so the FRMP has concluded that the existing maintenance regime should continue in order to maintain the current standard of protection.

### 4.3.2 AFAs with Measures Put Forward in FRMPs

In total, two AFAs have had FRM measures incorporating physical works proposed in the UoM11, UoM12 and UoM13 FRMPs. These are summarised in Table 4.3.1 below and the preferred methods described in Chapter 4.3.2. Full details can be found in Chapter 7.4 and Appendix G of each FRMP.



**Table 4.3.1: Summary of FRM Options advanced in Final FRMPs for UoM11, UoM12 and UoM13**

Spatial Scale	Name	Option Number	Description
<b>UoM11</b>			
Sub-Catchment	Slaney	0	No Options Technically and Economically feasible.
AFA	Blackwater	0	No Options Technically and Economically feasible.
AFA	Courtown	0	No Options Technically and Economically feasible.
AFA	Gorey	0	No Options Technically and Economically feasible.
<b>UoM12</b>			
AFA	Baltinglass	1	Hard Defences
AFA	Baltinglass	2	Hard Defences and Do Minimum
AFA	Bunclody	0	No Options Technically and Economically feasible.
AFA	Enniscorthy	0	No Options Technically and Economically feasible.
AFA	North Slobs	0	No Options Technically and Economically feasible.
AFA	South Slobs	0	No Options Technically and Economically feasible.
AFA	Tullow	0	No Options Technically and Economically feasible.
AFA	Wexford	1	Hard Defences and Improvement of Channel Conveyance
AFA	Wexford	2	Hard Defences
<b>UoM13</b>			
AFA	Kilmore	0	No Options Technically and Economically feasible.

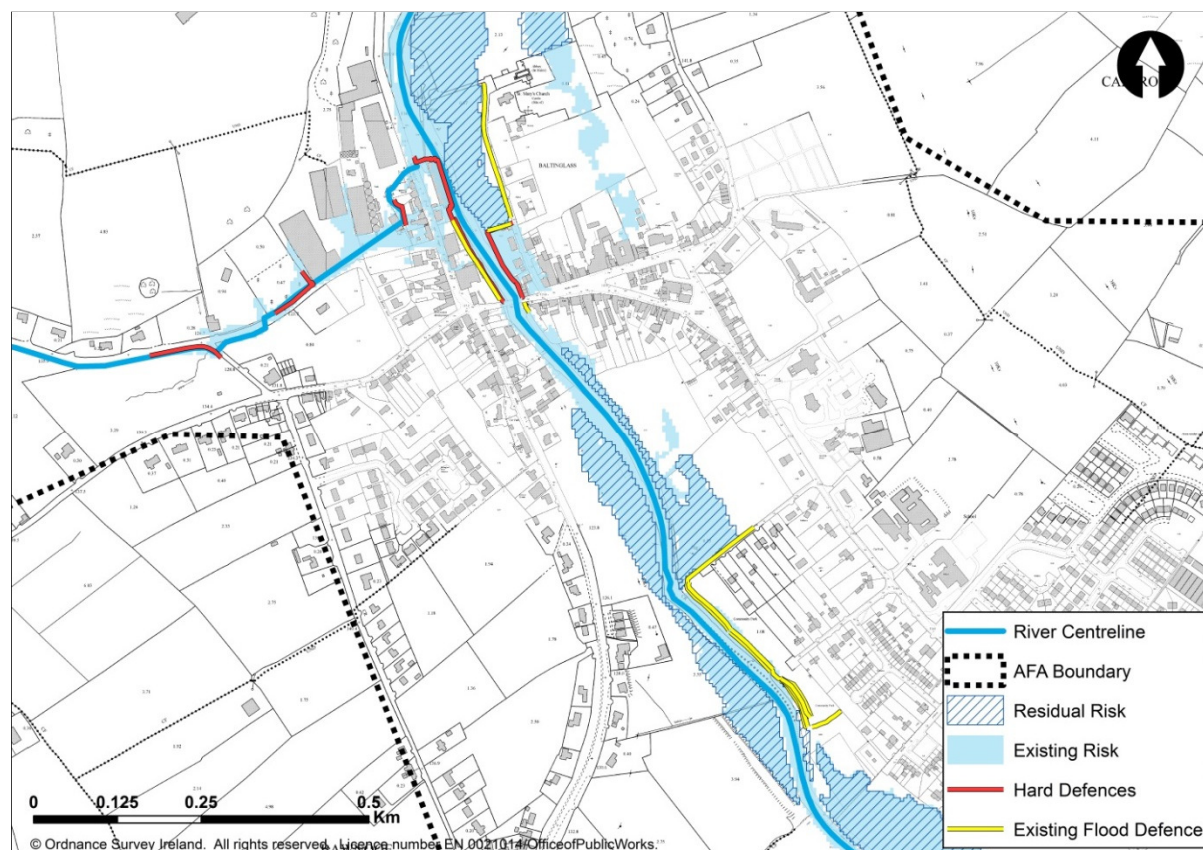
### 4.3.2.1 Baltinglass

**Preferred Measure:** Progress the development of a Flood Relief Scheme for Baltinglass

**Description:** Progress the project-level development and assessment of a Flood Relief Scheme for Baltinglass, including environmental assessment as necessary and further public consultation, for refinement and preparation for planning / Exhibition and, if and as appropriate, implementation.

At risk properties would be protected by a series of Hard Defences consisting of flood embankments and walls (see Figure 4.3.1). These hard defences would protect to the 1% AEP fluvial flood event with an average height of 1.3m and a total length of 0.58 km.

The works presented herein are not the final and definitive works. Potential flood relief works set out herein will need to be further developed at a local, project level before Exhibition or submission for planning approval.



**Figure 4.3.1: Baltinglass Preferred Measure**

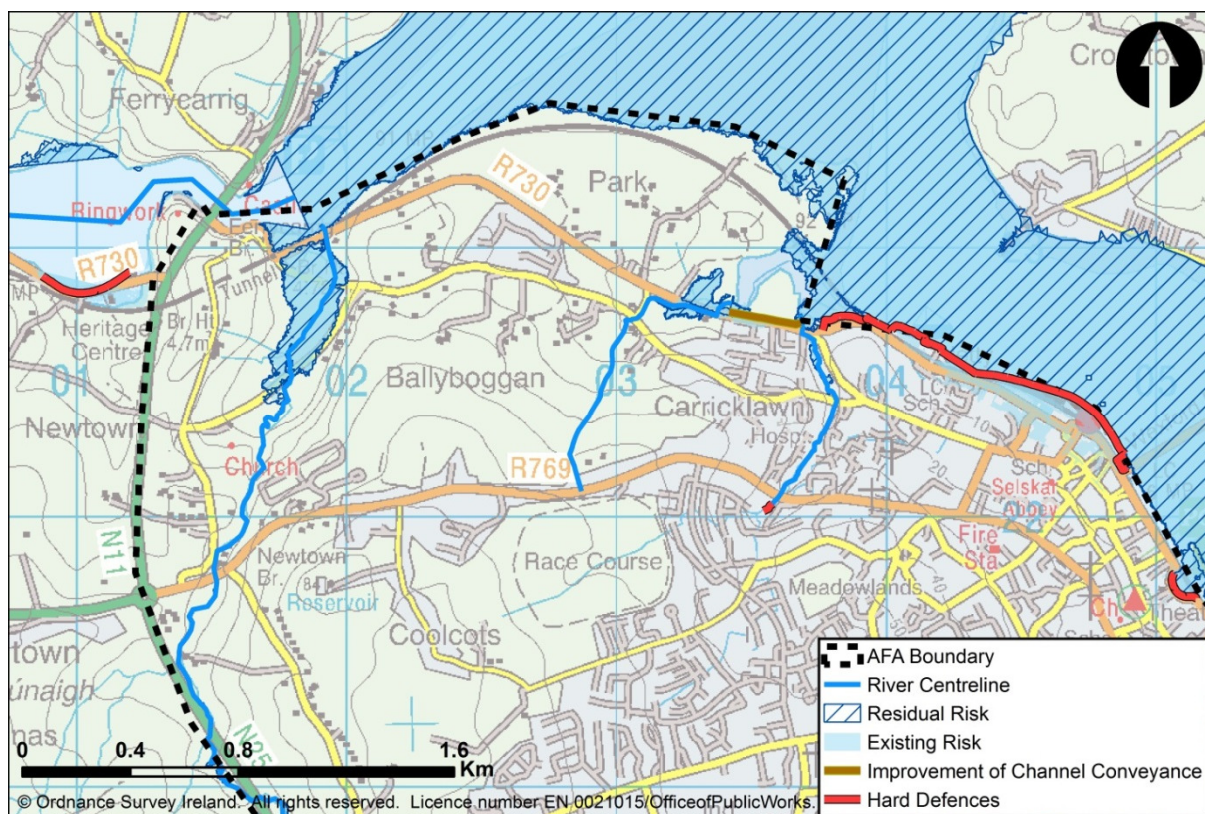
### 4.3.2.2 Wexford

**Preferred Measure:** Progress the development of a Flood Relief Scheme for Wexford

**Description:** Progress the project-level development and assessment of a Flood Relief Scheme for Wexford, including environmental assessment as necessary and further public consultation, for refinement and preparation for planning / Exhibition and, if and as appropriate, implementation.

At risk properties would be protected by a series of flood embankments and walls, along with improvement of channel conveyance close to the downstream end of the Carricklawn River (see Figure 4.3.2). The hard defences are required to protect to the 1% AEP fluvial flood event and a 0.5% AEP coastal flood event where appropriate, have an average height of 1.4 m and a total length of 1.3 km.

The works presented herein are not the final and definitive works. Potential flood relief works set out herein will need to be further developed at a local, project level before Exhibition or submission for planning approval.



**Figure 4.3.2: Wexford Preferred Measure**

## 5 APPROPRIATE ASSESSMENT OF AFA-SCALE MEASURES

### 5.1 BALTINGLASS AFA

All European sites in the zone of influence of Baltinglass AFA were screened for possible impacts from FRM methods (See Chapter 3.5). Screening assessed the potential for impact at five European sites (see Figure 5.1.1):

- Holdenstown Bog SAC (001757)
- River Barrow and River Nore SAC (002162)
- Slaney River Valley SAC (000781)
- Wicklow Mountains SAC (002122)
- Wicklow Mountains SPA (004040)

Four sites were found to have no identifiable impact pathway arising from the implementation of FRM methods within the Baltinglass catchment and were therefore screened out as not requiring any further assessment. One European site was identified as potentially being impacted upon through FRM activities at Baltinglass AFA; Slaney River Valley SAC (000781). The following section assesses the proposed FRM measures described in Chapter 4.3.2.1 in relation to the screened-in European site.

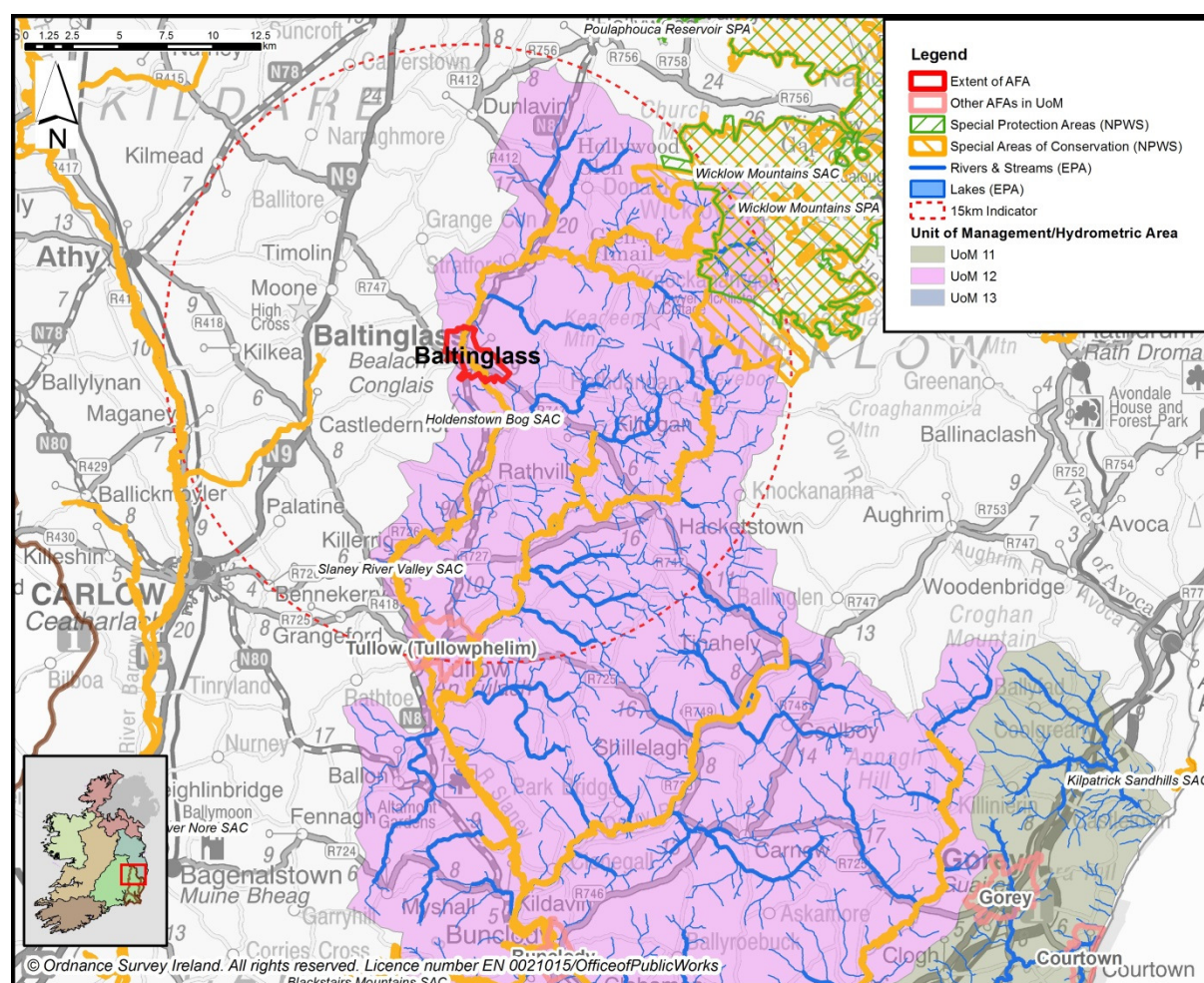


Figure 5.1.1: Baltinglass AFA in context of catchment and surrounding European sites

### 5.1.1 Identification of Potential Sources of Impact

This section further examines the source > pathway > receptor linkages that could potentially result in adverse impacts arising from FRM measures at Baltinglass AFA on the screened in European sites.

The qualifying interest(s) of the site(s) at risk from surface water pathways are identified in Table 5.1.1 and from land and air pathways in Table 5.1.2. Additional detail on the attributes and targets of the qualifying interests has been included in Appendix C. These have been consulted in order to assess the potential impacts of the proposed flood relief measures on the designated habitats and species insofar as plan-level details allowed.

#### 5.1.1.1 Potential Sources of Impact via Surface Water Pathways

One European sites was identified as potentially being impacted upon via surface water pathways; Slaney River Valley SAC (000781). Qualifying interests of this site at risk from surface water pathways are identified in Table 5.1.1. Additional detail on the qualifying interests has been included in Appendix C.

**Table 5.1.1: Qualifying Interests of the screened in European sites likely to be impacted upon via surface water pathways from FRM measures undertaken at Baltinglass AFA.**

European Site (Site code)	Qualifying Interests
Slaney River Valley SAC (000781)	<p>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> [1029]</p> <p>Sea Lamprey <i>Petromyzon marinus</i> [1095]</p> <p>Brook Lamprey <i>Lampetra planeri</i> [1096]</p> <p>River Lamprey <i>Lampetra fluviatilis</i> [1099]</p> <p>Twaite Shad <i>Alosa fallax</i> [1103]</p> <p>Atlantic Salmon <i>Salmo salar</i> (only in fresh water) [1106]</p> <p>Otter <i>Lutra lutra</i> [1355]</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p>

The following sources of impact arising from FRM measures at Baltinglass AFA could potentially impact upon the European sites detailed above through surface water pathways:

- **Suspended sediments** – There may be indirect negative downstream impacts from sedimentation during construction. Construction activities within or adjacent to surface waters and in-channel works to create flow diversion channels can result in the release of suspended sediments into those waters. This can lead to increased turbidity of surface waters, and an associated reduction in photosynthesis, which can impact on surface water dependent habitats. Impacts on aquatic species can occur through loss of suitable habitat (e.g. salmon spawning habitat), changes to or reduction in food supply (e.g. aquatic invertebrate density or diversity), or increased difficulty in feeding (e.g. otters will find greater difficulty hunting in turbid surface waters).

- **Changes in nutrient levels/pollutants** – Construction activities in or adjacent to surface waters can result in the release of nutrients into those waters, and can lead to reduced water quality and eutrophication. Hard defences can interfere with natural process, by causing some or all of the floodplain to be disconnected from the river, which can lead to the loss of natural habitat to capture, filter and recycle nutrients or pollutants. This can lead to a reduction in water quality. Spillages of hydrocarbons or other contaminants during FRM works can also result in a reduction in water quality. Reduced water quality and eutrophication can adversely impact on surface water dependent habitats, and on aquatic species through loss of suitable habitat, changes to or reduction in food supply, or increased difficulty in feeding.
- **Changes in water levels/channel morphology** – Removal of in-stream and marginal vegetation, and changes to channel morphology through the use of flood walls and embankments can lead to changes in capacity and flow of surface waters. This can lead to hydrological impacts on surface water dependent habitats and to aquatic species through habitat loss and changes to or reduction in food supply.

#### 5.1.1.2 Potential Sources of Impact via Land and Air Pathways

One European site was identified as potentially being impacted upon via land and air pathways; Slaney River Valley SAC (000781). Qualifying interests of this site at risk from land and air pathways are identified in Table 5.1.2: Additional detail on the qualifying interests has been included in Appendix C.

**Table 5.1.2: Qualifying Interests of the screened in European site likely to be impacted upon via land and air pathways from FRM measures undertaken at Baltinglass AFA.**

European Site (Site code)	Qualifying Interests
Slaney River Valley SAC (000781)	<p>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> [1029]</p> <p>Sea Lamprey <i>Petromyzon marinus</i> [1095]</p> <p>Brook Lamprey <i>Lampetra planeri</i> [1096]</p> <p>River Lamprey <i>Lampetra fluviatilis</i> [1099]</p> <p>Twaite Shad <i>Alosa fallax</i> [1103]</p> <p>Atlantic Salmon <i>Salmo salar</i> (only in fresh water) [1106]</p> <p>Otter <i>Lutra lutra</i> [1355]</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p>

The following sources of impact arising from FRM measures at Baltinglass AFA could potentially impact upon the European site detailed above through land and air pathways:

- **Physical habitat disturbance** – There is likely to be a direct loss of natural and semi-natural habitat in the direct footprint and vicinity of the defences and along access routes. Construction of flood walls and embankments adjacent to surface waters can result in a direct loss of or disturbance to aquatic, marginal and riparian habitats. This can indirectly

impact on species through loss of habitat or changes in food supply, thereby negatively affecting conservation objectives (population size, range or habitat use).

- **Noise and visual disturbance** – The use of construction machinery and the presence of construction and maintenance workers can result in avoidance of suitable habitat by sensitive species.

## 5.1.2 Impact Assessment

Table 5.1.3 assesses the screened in European sites in more detail and examines the ways in which the identified sources and pathways could adversely impact on habitats or species. Avoidance and mitigation measures are proposed to mitigate any significant adverse impacts. The potential for cumulative impacts was considered throughout the process of option development. Engagement with stakeholders ensured that the potential for in-combination and cumulative impacts at plan level was minimised. In combination and cumulative effects will be re-assessed at the project stage when project-specific information has been captured.

### 5.1.2.1 In-combination Effects

Appropriate Assessment requires consideration of the impacts on European sites of FRM measures at Baltinglass AFA, in combination with other plans or projects that may impact on the sites resulting in cumulative negative impacts. Potential sources of in-combination effects identified as part of this assessment include:

- The Appropriate Assessment of the Wicklow County Development Plan (CDP) 2016-2022 which includes the Baltinglass Local Area Plan has identified a number of plan elements including new development, infrastructure and tourism, plus the provision of two new pedestrian and road bridges in Baltinglass, where there is potential for significant impacts and which may have in-combination effects with the FRMP. Plan-level mitigation has been included in the CDP and no significant in-combination effects with the FRMP are predicted at plan level. Additional detail on potential interactions between these plan elements and the CFRAM scheme will be captured and assessed at project level, when project-specific design information is available.
- The Freshwater Pearl Mussel Derreen (Slaney) Sub-Basin Management Plan (EPA 2009) recognises that it is the combination of the negative effects of a number of pressures that are acting together to leave the freshwater pearl mussel habitat in unfavourable condition. These include peat exploitation, agricultural activities (overgrazing, direct access to watercourses, nutrient addition through slurry or fertiliser additions), forestry activities and wastewater treatment. Existing pressures in the catchment that can result in an increased sediment load can be considered as cumulative impacts with the potential sediment load from FRM measures, owing to the unfavourable status of the species and its sensitivity to sedimentation.
- Local landowners and farmers carry out agricultural activities in areas adjacent to this FRM work that could result in similar impacts and disturbance. These activities have been ongoing for many decades and are likely to be periodic and local in nature. Provided the FRM works are planned and managed correctly, the in-combination effects of FRM measures and agricultural operations is not likely to be significant.

- Wicklow County Council carries out ad-hoc maintenance to catchment watercourses where resources allow, however these maintenance activities are likely to be local in nature. It is recommended that maintenance activities on watercourses connected to the AFA are planned and managed correctly so as not to have cumulative impacts with FRM construction activities.
- In-combination effects may occur with FRM works, or parallel projects such as the Enniscorthy and Tullow Flood Relief Schemes (see section 3.1.2.2) being carried out at other AFAs or locations in the UoM. Generic mitigation and monitoring measures have been developed, including the avoidance of undertaking FRM work on adjoining reaches of rivers for different AFAs or other parallel or preceding projects simultaneously. Provided the FRM works are planned and managed correctly, no significant in-combination impacts are anticipated.

There are no other plans/projects ongoing or proposed (at the time of this study) which may give rise to any form of cumulative impact on the European sites.



**Table 5.1.3: Impact assessment for FRM measures at Baltinglass AFA**

Site name (site code)	Qualifying interests	Potential source of impact	Pathway	Potential Impacts	Avoidance/mitigation measures	Residual impact
Slaney River Valley SAC (000781)	[1029] Freshwater Pearl Mussel <i>Margaritifera margaritifera</i>	Suspended sediments  Changes to nutrient levels/pollutant release	Surface water	<p>The habitats and species for which the Slaney River Valley SAC was designated require particular water quality conditions. The favourable conservation conditions of Salmon, freshwater pearl mussel, twaite shad and ‘water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation’ are directly measured by water quality attributes, and the conservation status of other species are measured by attributes indirectly linked to water quality and sediment loadings, such as the extent and distribution of spawning habitats and the extent of freshwater habitat.</p> <p>In the absence of mitigation, construction of hard defences adjacent to the water could result in a release of suspended sediments and associated nutrients and/or pollution incidents from machinery. This could lead to a reduction in water quality, and result in adverse effects on the designated habitats and species of this site through loss of habitat or changes to food supply. Salmon spawning grounds and freshwater pearl mussel juvenile gravel habitat will be particularly susceptible to adverse impacts from the release of suspended solids.</p> <p>Disconnecting areas of floodplain from the river can lead to a reduction in water quality owing to a reduction in habitat area to attenuate nutrients or other pollutants.</p> <p>In the absence of mitigation, There are likely to be indirect, negative downstream impacts from sedimentation during construction. These impacts are expected to be short-term and local</p>	<p>A designated environmental officer should be appointed to oversee environmental management of the project.</p> <p>Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.</p> <p>Set hard defences back from the river channel wherever possible to minimise sediment loss into the river channel, and avoid working in-channel.</p> <p>Follow Lamprey and Otter SOPs.</p> <p>Avoid working in-channel, wherever possible, to ensure salmon and lamprey habitat is not disturbed. Instream works should only be carried out during the period July to September inclusive, following consultation and agreement with IFI.</p> <p>Surveys should be undertaken by appropriately qualified ecologists prior to commencement of the FRM</p>	No
	[1095] Sea Lamprey <i>Petromyzon marinus</i>					
	[1096] Brook Lamprey <i>Lampetra planeri</i>					
	[1099] River Lamprey <i>Lampetra fluviatilis</i>					
	[1103] Twaite Shad <i>Alosa fallax</i>					
	[1106] Atlantic Salmon <i>Salmo salar</i>					
	[1355] Otter <i>Lutra lutra</i>					
	[3260] Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation					
[91E0]* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )						

Site name (site code)	Qualifying interests	Potential source of impact	Pathway	Potential Impacts	Avoidance/mitigation measures	Residual impact
				<p>in scale but may have long-term impacts if salmon spawning beds are present at the construction site or directly downstream.</p> <p>Baltinglass is in the Slaney Upper Sub-Basin Freshwater Pearl Mussel sensitive area, which covers previous records of the species. The measures will not be located within the catchments covered by the Slaney -Derreen Sub-basin Freshwater Pearl Mussel Management Plans; however they will be only a short distance upstream of sites where previous surveys have found FPM. There is potential for impacts on many of the conservation objectives for this species from sedimentation, including 'Population structure: recruitment' and 'adult mortality', 'habitat extent', 'water quality' and 'substratum quality'. Direct mortality of adult mussels can occur as a result of sedimentation, while addition of fine sediments makes habitat unsuitable for juvenile mussel recruitment.</p> <p>Otter may be impacted by increases in suspended sediment, should visibility be impaired or food supply be affected.</p> <p>There is potential for impacts on 'Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation', in particular on the conservation objective for this habitat to 'maintain a substratum that is dominated by large particles and free from fine sediments'.</p>	<p>work, to identify any important salmon, lamprey, or twaite shad habitat, or 'Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation' habitat in the vicinity of FRM works or directly downstream of the AFA, and any potentially significant impacts on these species/habitats. Surveys should inform any mitigation measures necessary for design or construction.</p> <p>An otter survey should be undertaken by an appropriately qualified ecologist with otter surveying experience. The survey should inform any necessary mitigation measures necessary for design or construction.</p> <p>An appropriate freshwater pearl mussel expert should be appointed to conduct surveys, identify potential impacts on this species and provide appropriate mitigation advice. Should sedimentation impacts be possible on this species and/or its potential habitat, the detailed FRM design</p>	

Site name (site code)	Qualifying interests	Potential source of impact	Pathway	Potential Impacts	Avoidance/mitigation measures	Residual impact
					<p>and sediment mitigation must prevent additional sediment from entering the watercourse.</p> <p>See also measures in Chapter 6.</p>	
		Water level changes		<p>The designated habitats and species depend on specific hydrological regimes. Construction of flood walls and embankments can result in changes in channel hydrology, by increasing capacity and flow rates. This could lead to a reduction of suitable habitat and adverse effects on the conservation objectives for the species (population size and range).</p> <p>A small area of the priority habitat of 'Alluvial Forests...' [91E0], is recorded c. 3km upstream of the upstream boundary of Baltinglass AFA. Significant changes to the hydrological regime are unlikely, as the works will be local in nature, and are therefore unlikely to impact significantly on attributes used to define conservation status, but the magnitude and significance of potential change must be verified during the option design stage.</p>	<p>Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.</p> <p>Design will be subjected to hydraulic model testing to establish nature and scale of effects and confirm that no significant effects will occur.</p> <p>See also measures in Chapter 6.</p>	No
		Physical habitat disturbance	Land and air	<p>Construction activities that remove vegetation or otherwise disturb habitats could adversely affect the habitat area, vegetation structure and composition of designated habitats. Destruction or alteration of aquatic or riparian habitats could adversely affect designated species through loss of cover for otter or damage to lamprey or salmon spawning areas.</p> <p>There will be a permanent footprint of defences on the bank or set back from the bank of the</p>	<p>Strictly adhere to best practice protocols and SOPs (including Lamprey and Otter SOPs) during construction and maintenance in order to minimise physical disturbance.</p> <p>Avoid working in-channel unless essential.</p>	No

Site name (site code)	Qualifying interests	Potential source of impact	Pathway	Potential Impacts	Avoidance/mitigation measures	Residual impact
				<p>river. However, the proposed floodwalls and other hard defences are in urban areas where some hard defences already exist. There is potential for short-term construction impacts from hard defences. These impacts are expected to be short-term and local in scale, and with mitigation are unlikely to impact significantly on attributes used to define conservation status.</p>	<p>Survey by a qualified ecologist prior to commencement of the FRM work, to identify any important salmon, lamprey or twaite shad habitat in the vicinity of FRM works.</p> <p>Defences should be set back from river wherever possible.</p> <p>Instream works should only be carried out during the period July to September inclusive, following consultation and agreement with IFI.</p> <p>An otter survey should be undertaken by an appropriately qualified ecologist with otter surveying experience. The survey should identify any otter habitat, resting sites or holts in the vicinity of proposed works areas (including access routes) and inform any necessary mitigation in the scheme's design or construction.</p> <p>Bankside vegetation should be restored following completion of the works.</p>	

Site name (site code)	Qualifying interests	Potential source of impact	Pathway	Potential Impacts	Avoidance/mitigation measures	Residual impact
					See also measures in Chapter 6.	
		Noise and visual disturbance		The species for which this SAC is designated are sensitive to disturbance by maintenance workers and noise from machinery and may avoid areas where works are being undertaken. This could adversely affect habitat use by otter, which require lying up areas throughout their territory.	<p>Strictly adhere to best practice protocols and SOPs including Lamprey and Otter SOPs during construction and maintenance in order to minimise physical disturbance.</p> <p>Avoid working in-channel unless essential.</p> <p>No in-channel or bankside works to be conducted within 50m of a known or potential otter holt/ resting site.</p> <p>See also measures in Chapter 6.</p>	No
		Introduction or spreading of alien invasive species	Land and surface water	Invasive species can spread rapidly through habitats, form dense thickets which can out-compete native plants and increase risk of soil erosion.	<p>Carry out invasive species surveys and follow SOPs (see Table 6.1.1)</p> <p>See general mitigation in Chapter 6</p>	No

### 5.1.3 Conclusions

This NIS details the findings of the Stage 2 Appropriate Assessment conducted to further examine the potential direct and indirect impacts of proposed FRM works at Baltinglass AFA on the following European site:

- Slaney River Valley SAC (000781)

The Appropriate Assessment investigated the potential direct and indirect impacts of the proposed works on the integrity and interest features of the above European site, alone and in-combination with other plans and projects, taking into account the site's structure, function and conservation objectives. Where potentially significant adverse impacts were identified, a range of mitigation and avoidance measures have been suggested to help offset them. As a result of this Appropriate Assessment it has been concluded that, following the avoidance and mitigation measures suggested, the FRM measures at Baltinglass AFA will not have a significant adverse impact on the above European site.

Project level assessment will be undertaken based on option designs and site surveys to further consider the attributes and targets of site specific conservation objectives.

## 5.2 WEXFORD AFA

All European sites in the zone of influence of Wexford AFA were screened for possible impacts from FRM methods (see Chapter 3.6). Screening assessed the potential for impact at sixteen European sites (see Figure 5.2.1):

- Ballyteige Burrow SAC (000696)
- Ballyteigue Burrow SPA (004020)
- Bannow Bay SAC (000697)
- Blackwater Bank SAC (002953)
- Carnsore Point SAC (002269)
- Lady's Island Lake SAC (000704)
- Lady's Island Lake SPA (004009)
- Long Bank SAC (002161)
- Raven Point Nature Reserve SAC (000710)
- Saltee Islands SAC (000707)
- Screen Hills SAC (000708)
- Slaney River Valley SAC (000781)
- Tacumshin Lake SAC (000709)
- Tacumshin Lake SPA (004092)
- The Raven SPA (004019)
- Wexford Harbour and Slobbs SPA (004076)

Ten sites were found to have no identifiable impact pathway arising from the implementation of FRM methods within the Wexford catchment and were therefore screened out as not requiring any further assessment. Six European sites were identified as potentially being impacted upon through FRM activities at Wexford AFA; Blackwater Bank SAC (002953), Long Bank SAC (002161), Raven Point Nature Reserve SAC (000710), Slaney River Valley SAC (000781), The Raven SPA (004019), and Wexford Harbour and Slobbs SPA (004076). The following section assesses the proposed FRM measures as described in 4.3.2.2 in relation to the screened- in European sites.

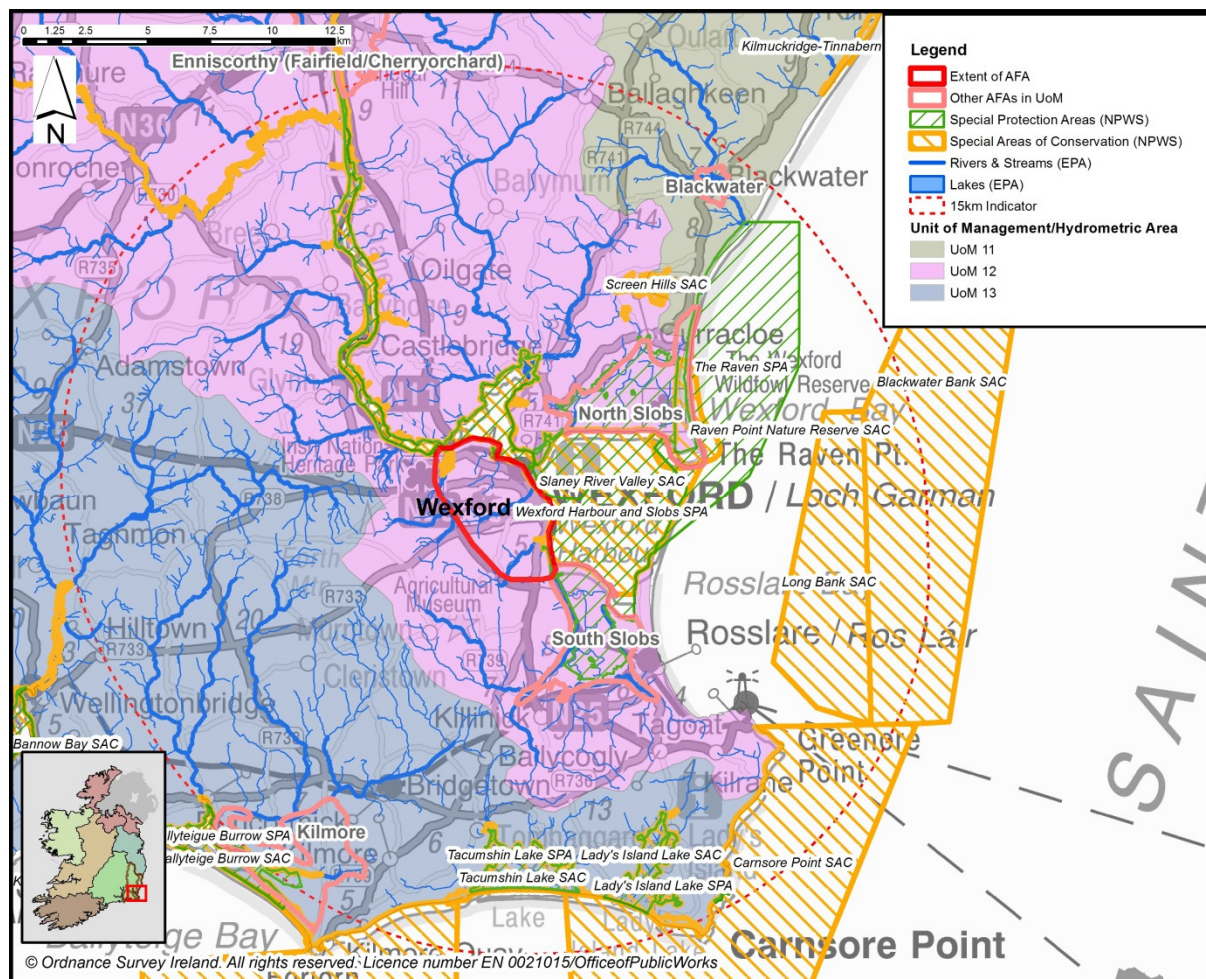


Figure 5.2.1: Wexford AFA in context of catchment and surrounding European sites

## 5.2.1 Identification of Potential Sources of Impact

This section further examines the source > pathway > receptor linkages that could potentially result in adverse impacts arising from FRM measures at Wexford AFA on the screened in European sites.

The qualifying interest(s) of the site(s) at risk from surface water pathways are identified in Table 5.2.1 and from land and air pathways in Table 5.2.2. Additional detail on the attributes and targets of the qualifying interests has been included in Appendix C. These have been consulted in order to assess the potential impacts of the proposed flood relief measures on the designated habitats and species insofar as plan-level details allowed.

### 5.2.1.1 Potential Sources of Impact via Surface Water Pathways

The qualifying interests of Blackwater Bank SAC, Long Bank SAC, Raven Point Nature Reserve SAC and The Raven SPA are not expected to be impacted on by surface water pathways, as these features are approximately 12.6km, 9.6km, 4.7km and 4.1km from Wexford AFA, respectively. Two European sites were identified as potentially being impacted upon via surface water pathways; Slaney River Valley SAC (000781) and Wexford Harbour and Slobs SPA (004076). Qualifying interests of these sites at risk from surface water pathways are identified in Table 5.2.1. Additional detail on the qualifying interests has been included in Appendix C.

**Table 5.2.1: Qualifying Interests of the screened in European sites likely to be impacted upon via surface water pathways from FRM measures undertaken at Wexford AFA.**

European Site (Site code)	Qualifying interests
Slaney River Valley SAC (000781)	<p>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> [1029]</p> <p>Sea Lamprey <i>Petromyzon marinus</i> [1095]</p> <p>Brook Lamprey <i>Lampetra planeri</i> [1096]</p> <p>River Lamprey <i>Lampetra fluviatilis</i> [1099]</p> <p>Twaite Shad <i>Alosa fallax</i> [1103]</p> <p>Atlantic Salmon <i>Salmo salar</i> (only in fresh water) [1106]</p> <p>Otter <i>Lutra lutra</i> [1355]</p> <p>Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260]</p> <p>* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p>
Wexford Harbour and Slobs SPA (004076)	Wetland and waterbirds [A999]

The following sources of impact arising from FRM measures at Wexford AFA could potentially impact upon the European sites detailed above through surface water pathways:

- Suspended sediments** – There may be indirect negative impacts from sedimentation during construction. Construction of hard defences within or adjacent to surface waters can result in the release of suspended sediments into those waters. This can lead to increased turbidity of surface waters, and an associated reduction in photosynthesis, which can impact on surface water dependent habitats. Impacts on aquatic species can occur through loss of suitable habitat, changes to or reduction in food supply (e.g. aquatic invertebrate density or



diversity). Increasing channel conveyance by dredging to widen or deepen a watercourse can mobilise sediment and lead to sedimentation impacts downstream.

- **Changes in nutrient levels/pollutants** – Construction activities in or adjacent to surface waters can result in the release of nutrients into those waters, and can lead to reduced water quality and eutrophication. Hard defences can interfere with natural process, by causing some or all of the floodplain to be disconnected from the river, which can lead to the loss of natural habitat to capture, filter and recycle nutrients or pollutants. This can lead to a reduction in water quality. Spillages of hydrocarbons or other contaminants during FRM works can also result in a reduction in water quality. Reduced water quality and eutrophication can adversely impact on surface water dependent habitats, and on aquatic species through loss of suitable habitat, changes to or reduction in food supply, or increased difficulty in feeding.
- **Changes in water levels/channel morphology** – Removal of in-stream and marginal vegetation, and changes to channel morphology through the use of flood walls and embankments can lead to changes in capacity and flow of surface waters. This can lead to hydrological impacts on surface water dependent habitats and to aquatic species through habitat loss and changes to or reduction in food supply. Increasing channel conveyance by dredging to widen or deepen a watercourse can lead to increased capacity and flow rates, which can impact on upstream or downstream habitats.

### 5.2.1.2 Potential Sources of Impact via Land and Air Pathways

The qualifying interests of Blackwater Bank SAC, Long Bank SAC and Raven Point Nature Reserve SAC are not expected to be impacted upon by surface water pathways, as these features are approximately 12.6km, 9.6km and 4.7km from Wexford AFA, respectively. Three European sites were identified as potentially being impacted upon via land and air pathways; Slaney River Valley SAC (000781), Wexford Harbour and Slobs SPA (004076) and The Raven SPA (004019). The Raven SPA is located at a distance of 4.1km from Wexford AFA, however wintering birds for which this site is designated may at times use habitats situated in ecologically connected areas such as the Slaney River Valley SAC and the Wexford Harbour and Slobs SPA, therefore impacts at these sites have the potential to impact upon attributes used to define conservation status of designated species. Qualifying interests of these sites at risk from land and air pathways are identified in Table 5.2.2. Additional detail on the qualifying interests has been included in Appendix C.

**Table 5.2.2: Qualifying Interests of the screened in European sites likely to be impacted upon via land and air pathways from FRM measures undertaken at Wexford AFA.**

European Site (Site code)	Qualifying interests
Slaney River Valley SAC (000781)	Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> [1029] Sea Lamprey <i>Petromyzon marinus</i> [1095] Brook Lamprey <i>Lampetra planeri</i> [1096] River Lamprey <i>Lampetra fluviatilis</i> [1099] Twaite Shad <i>Alosa fallax</i> [1103] Atlantic Salmon <i>Salmo salar</i> (only in fresh water) [1106] Otter <i>Lutra lutra</i> [1355] Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and

	<p><i>Callitriche-Batrachion</i> vegetation [3260]                  * Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]                  Mudflats and sandflats not covered by seawater at low tide [1140]</p>
<p><b>Wexford Harbour and Slobs SPA (004076)</b></p>	<p>Little Grebe (<i>Tachybaptus ruficollis</i>) [A004]                  Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]                  Grey Heron (<i>Ardea cinerea</i>) [A028]                  Bewick's Swan (<i>Cygnus columbianus bewickii</i>) [A037]                  Whooper Swan (<i>Cygnus cygnus</i>) [A038]                  Wigeon (<i>Anas penelope</i>) [A050]                  Teal (<i>Anas crecca</i>) [A052]                  Mallard (<i>Anas platyrhynchos</i>) [A053]                  Pintail (<i>Anas acuta</i>) [A054]                  Scaup (<i>Aythya marila</i>) [A062]                  Goldeneye (<i>Bucephala clangula</i>) [A067]                  Coot (<i>Fulica atra</i>) [A125]                  Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]                  Cormorant (<i>Phalacrocorax carbo</i>) [A017]                  Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]                  Shelduck (<i>Tadorna tadorna</i>) [A048]                  Red-breasted Merganser (<i>Mergus serrator</i>) [A069]                  Oystercatcher (<i>Haematopus ostralegus</i>) [A130]                  Golden Plover (<i>Pluvialis apricaria</i>) [A140]                  Grey Plover (<i>Pluvialis squatarola</i>) [A141]                  Lapwing (<i>Vanellus vanellus</i>) [A142]                  Knot (<i>Calidris canutus</i>) [A143]                  Sanderling (<i>Calidris alba</i>) [A144]                  Dunlin (<i>Calidris alpina</i>) [A149]                  Black-tailed Godwit (<i>Limosa limosa</i>) [A156]                  Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]                  Curlew (<i>Numenius arquata</i>) [A160]                  Redshank (<i>Tringa totanus</i>) [A162]                  Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179]                  Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]                  Hen Harrier (<i>Circus cyaneus</i>) [A082]                  Little Tern (<i>Sterna albifrons</i>) [A195]                  Wetlands and Waterbirds [A999]</p>
<p><b>The Raven SPA (004019)</b></p>	<p>Red-throated Diver (<i>Gavia stellata</i>) [A001]                  Common Scoter (<i>Melanitta nigra</i>) [A065]                  Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]                  Cormorant (<i>Phalacrocorax carbo</i>) [A017]                  Grey Plover (<i>Pluvialis squatarola</i>) [A141]                  Sanderling (<i>Calidris alba</i>) [A144]</p>

The following sources of impact arising from FRM measures at Wexford AFA could potentially impact upon the European sites detailed above through land and air pathways:

- **Physical habitat disturbance** – There is likely to be a direct loss of natural and semi-natural habitat in the direct footprint and vicinity of the defences and along access routes. Construction of flood walls and embankments adjacent to surface waters can result in a direct loss of, or disturbance to, aquatic, marginal and riparian habitats. Poorly designed coastal protection works have the potential to cause significant adverse impact on habitats during their operational phase, such as causing scour and cut back, or dropping beach levels. These influences can indirectly impact on species through loss of habitat or changes in food supply, thereby negatively affecting conservation objectives (population size, range or habitat use). Increasing channel conveyance by dredging to widen or deepen a watercourse can lead to direct impacts on aquatic and riparian habitats and along access routes.
- **Noise and visual disturbance** – The use of construction machinery and the presence of construction and maintenance workers can result in avoidance of suitable habitat by sensitive species.

## 5.2.2 Impact Assessment

Table 5.2.3 assesses the screened in European sites in more detail and examines the ways in which the identified sources and pathways could adversely impact on habitats or species. Avoidance and mitigation measures are proposed to mitigate any significant adverse impacts. The potential for cumulative impacts was considered throughout the process of option development. Engagement with stakeholders ensured that the potential for in-combination and cumulative impacts at plan level was minimised. In combination and cumulative effects will be re-assessed at the project stage when project-specific information has been captured.

### 5.2.2.1 In-combination Effects

Appropriate Assessment requires consideration of the impacts on European sites of FRM measures at Wexford AFA, in combination with other plans or projects that may impact on the sites resulting in cumulative negative impacts. Potential sources of in-combination effects identified as part of this assessment include:

- The Freshwater Pearl Mussel Derreen (Slaney) Sub-Basin Management Plan (EPA 2009) recognises that it is the combination of the negative effects of a number of pressures that are acting together to leave the freshwater pearl mussel habitat in unfavourable condition. These include peat exploitation, agricultural activities (overgrazing, direct access to watercourses, nutrient addition through slurry or fertiliser additions), forestry activities and wastewater treatment. Existing pressures in the catchment that can result in an increased sediment load can be considered as cumulative impacts with the potential sediment load from FRM measures, owing to the unfavourable status of the species and its sensitivity to sedimentation.
- Local landowners and farmers carry out agricultural activities in areas adjacent to this FRM work that could result in similar impacts and disturbance. These activities have been ongoing for many decades and are likely to be periodic and local in nature. Provided the FRM works are planned and managed correctly, the in-combination effects of FRM measures and agricultural operations is not likely to be significant.

- The Wexford County Development Plan 2013-2019 provides a framework for the development of County Wexford over the plan period and the Wexford Town and Environs Development Plan 2009-2015 (as extended to 2019) focuses on a strategy for development in Wexford Town. There are a number of plan elements in these plans with the potential for in-combination or cumulative impacts with FRM measures at Wexford AFA. These include improvements/expansion of settlements, tourism, recreation, infrastructure and waste water services. Plan-level mitigation has been included in the CDP and the FRMP and no significant in-combination effects with the FRMPs are predicted at plan level. Additional detail on potential interactions between these plan elements and the CFRAM scheme will be captured and assessed at project level, when project-specific design information is available.
- Wexford County Council carries out ad-hoc maintenance to catchment watercourses where resources allow, however these maintenance activities are likely to be local in nature. It is recommended that maintenance activities on watercourses connected to the AFA are planned and managed correctly so as not to have cumulative impacts with FRM construction activities.
- In-combination effects may occur with FRM works, or parallel projects such as the Enniscorthy and Tullow Flood Relief Schemes (see Sections 3.1.2.2 and 4.1.7) being carried out at other AFAs or locations in the UoM. Generic mitigation and monitoring measures have been developed, including the avoidance of undertaking FRM work on adjoining reaches of rivers for different AFAs or other parallel or preceding projects simultaneously. Provided the FRM works are planned and managed correctly, no significant in-combination impacts are anticipated.

There are no other plans/projects ongoing or proposed (at the time of this study) which may give rise to any form of cumulative impact on the European sites.

**Table 5.2.3: Impact assessment for FRM measures at Wexford AFA**

Site name (site code)	Qualifying interests	Potential source of impact	Pathway	Potential Impacts	Avoidance/mitigation measures	Residual impact
<b>Slaney River Valley SAC (000781)</b>	[1029] Freshwater Pearl Mussel <i>Margaritifera margaritifera</i>	Suspended sediments  Changes to nutrient levels/pollutant release	Surface water	<p>The habitats and species for which the Slaney River Valley SAC was designated require particular water quality conditions. The favourable conservation conditions of Salmon, freshwater pearl mussel, twaite shad and water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation are directly measured by water quality attributes, and the conservation status of other species are measured by attributes indirectly linked to water quality and sediment loadings, such as the extent and distribution of spawning habitats (lamprey and twaite shad) and the extent of freshwater habitat (otter).</p> <p>In the absence of mitigation, construction activities in or adjacent to the water could result in a release of suspended sediments and associated nutrients and/or pollution incidents from machinery. This could lead to a reduction in water quality, and result in adverse effects on the designated habitats and species of this site through loss of habitat or changes to food supply. Disconnecting areas of floodplain from the river can lead to a reduction in water quality owing to a reduction in habitat area to attenuate nutrients or other pollutants.</p> <p>In the absence of mitigation, there are likely to be indirect, negative downstream/alongshore impacts from sedimentation during construction of defences on or set back from the coastline. These impacts are expected to be short-term and local in scale. There is not expected to be any impact on freshwater pearl mussel populations in the Slaney River Valley SAC as populations are</p>	<p>Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.</p> <p><u>Fluvial/Coastal hard defences:</u> An otter survey should be undertaken by an appropriately qualified ecologist with otter surveying experience. The survey should inform any necessary mitigation.</p> <p>Defences should be set back from the shoreline wherever possible.</p> <p>Where possible, avoid working in-channel or in the intertidal zone.</p> <p>Survey by a qualified ecologist prior to commencement of the FRM work, to identify any important intertidal or otter habitat in the vicinity of FRM works.</p> <p>Design will be subjected to hydrodynamic testing to establish nature and</p>	<p>Provided the option design, construction and maintenance phases are carried out using effective mitigation, residual impacts should not be significant.</p>
	[1095] Sea Lamprey <i>Petromyzon marinus</i>					
	[1096] Brook Lamprey <i>Lampetra planeri</i>					
	[1099] River Lamprey <i>Lampetra fluviatilis</i>					
	[1103] Twaite Shad <i>Alosa fallax</i>					
	[1106] Atlantic Salmon <i>Salmo salar</i>					
	[1355] Otter <i>Lutra lutra</i>					
	[3260] Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation					
[91E0]* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>AlnoPadion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )						
Mudflats and sandflats not covered by seawater at low tide [1140]						

				<p>located principally in the Derreen River and the upper reaches of the Slaney, upstream of Wexford AFA and beyond the tidally-influenced area.</p> <p>In the absence of mitigation, increasing channel conveyance in the Carricklawn River could also result in negative effects on water quality during the work and following its completion, owing to a loss of habitat to filter nutrients and reduced carbon storage. Erosion and sediment supply may be exacerbated downstream of the modified conveyance area with potentially significant negative effects. There are likely to be intermittent impacts during flood events on the Lower Slaney Estuary and thus on the Slaney River Valley SAC.</p>	<p>scale of effects on intertidal sediments and confirm that no significant effects will occur on the development, structure, function and distribution of Annex I habitats in the SAC, prior to proceeding to the Exhibition/Planning phase.</p> <p><u>Increasing channel conveyance:</u> Careful timing of works to avoid periods of high flow that could result in increased sediment mobilisation.</p> <p>Only carry out maintenance of the channel when absolutely necessary and, when doing so, avoid periods of high flow that could result in increased sediment mobilisation.</p> <p>The detailed design, construction and maintenance phases should be carried out using effective mitigation for sedimentation impacts. The design should be such that in the project-level assessment, a conclusion of 'no likely significant effect' would</p>	
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					be achieved. See also measures in Chapter 6.	
		Water level changes		<p>The designated habitats and species depend on specific hydrological regimes. Construction of flood walls and embankments can result in changes in channel hydrology, by increasing capacity and flow rates. This could lead to a reduction of suitable habitat and adverse effects on the conservation objectives for the species (population size and range).</p> <p>A small area of the priority habitat of 'Alluvial Forests...' [91E0], is recorded in the vicinity of Ferrycarrig.</p> <p>Significant changes to the hydrological regime are unlikely, as the works will be local in nature, and are therefore unlikely to impact significantly on attributes used to define conservation status, but the magnitude and significance of potential change must be verified during the option design stage.</p>	<p>Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.</p> <p>Hydraulic model testing should be used to inform design and ensure that it is such that in the project-level assessment, a conclusion of 'no likely significant effect' would be achieved.</p> <p>See also measures in Chapter 6.</p>	No
		Physical habitat disturbance	Land and air	<p>Some construction will take place along the edge of the SAC. Physical disturbance by machinery and workers could lead to a loss of habitat adjacent to the hard defences and along access routes.</p> <p>Construction activities that remove vegetation or otherwise disturb habitats could adversely affect the habitat area, vegetation structure and composition of designated habitats.</p> <p>Destruction or alteration of aquatic or riparian habitats could adversely affect designated species through loss of cover for otter.</p> <p>There will be a permanent footprint from hard</p>	<p>Strictly adhere to best practice protocols and SOPs including Lamprey and Otter SOPs during construction and maintenance in order to minimise physical disturbance.</p> <p>Defences should be set back from river/shoreline wherever possible.</p> <p>Avoid working in-channel unless essential.</p> <p>Where increasing</p>	No

				<p>defences on the bank or set back from the bank of the river, however some hard defences are already present at this location. In the absence of mitigation there is potential for direct impacts during construction of hard defences; however these are expected to be short-term and local in nature, and are therefore unlikely to impact significantly on attributes used to define conservation status.</p> <p>Construction of coastal defences has the potential to alter coastal processes which may result in indirect impacts to intertidal sediments and estuarine habitats. Coastal flood walls and embankments must be designed and constructed such that they do not alter coastal processes in a significant manner.</p>	<p>conveyance is to be achieved by dredging, consider conducting these works in stages, e.g. one half of channel width dredged in any one month. Staggering of works will allow refugia to remain for aquatic invertebrates, allowing re-colonisation of the dredged areas and maintaining prey species for fish including salmon.</p> <p>Hydrodynamic study/survey will be required to assess the likely implications of coastal hard defences to erosion rates in adjacent areas and assess the significance of any potential adverse impacts on wetland habitat.</p> <p>An otter survey should be undertaken by an appropriately qualified ecologist with otter surveying experience. The survey should inform any necessary mitigation. No in-channel or bankside works to be conducted within 50m of a known or potential Otter holt/ resting site.</p> <p>No in-channel working</p>	
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					<p>during the salmonid spawning season. Instream works should only be carried out during the period July to September inclusive, following consultation and agreement with IFI.</p> <p>See also measures in Chapter 6.</p>	
		Noise and visual disturbance		<p>The species for which this SAC is designated are sensitive to disturbance by maintenance workers and noise from machinery and may avoid areas where works are being undertaken. This could adversely affect habitat use by otter, which require lying up areas throughout their territory.</p>	<p>Strictly adhere to best practice protocols and SOPs including Lamprey and Otter SOPs during construction and maintenance in order to minimise physical disturbance.</p> <p>Avoid working in-channel unless essential.</p> <p>No in-channel or bankside works to be conducted within 50m of a known or potential otter holt/ resting site.</p> <p>See also measures in Chapter 6.</p>	No
		Introduction or spreading of alien invasive species	Land and surface water	<p>Invasive species can spread rapidly through habitats, form dense thickets which can out-compete native plants and increase risk of soil erosion.</p>	<p>Carry out invasive species surveys and follow SOPs (see Table 6.1.1)</p> <p>See general mitigation in Chapter 6</p>	No
<b>Wexford Harbour and Slobs SPA (004076)</b>	Wetland and Waterbirds [A999] Little Grebe ( <i>Tachybaptus ruficollis</i> ) [A004]	Suspended sediments	Surface water	<p>The birds for which this SPA is designated are dependent on wetland habitats within the site. Construction of coastal flood walls will take place</p>	<p>Strictly adhere to best practice protocols and</p>	Some intermittent

	<p>Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]                  Grey Heron (<i>Ardea cinerea</i>) [A028]                  Bewick's Swan (<i>Cygnus columbianus bewickii</i>) [A037]                  Whooper Swan (<i>Cygnus cygnus</i>) [A038]                  Wigeon (<i>Anas penelope</i>) [A050]                  Teal (<i>Anas crecca</i>) [A052]                  Mallard (<i>Anas platyrhynchos</i>) [A053]                  Pintail (<i>Anas acuta</i>) [A054]                  Scaup (<i>Aythya marila</i>) [A062]                  Goldeneye (<i>Bucephala clangula</i>) [A067]                  Coot (<i>Fulica atra</i>) [A125]                  Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]                  Cormorant (<i>Phalacrocorax carbo</i>) [A017]                  Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]                  Shelduck (<i>Tadorna tadorna</i>) [A048]                  Red-breasted Merganser (<i>Mergus serrator</i>) [A069]                  Oystercatcher (<i>Haematopus ostralegus</i>) [A130]                  Golden Plover (<i>Pluvialis apricaria</i>) [A140]                  Grey Plover (<i>Pluvialis squatarola</i>) [A141]                  Lapwing (<i>Vanellus vanellus</i>) [A142]                  Knot (<i>Calidris canutus</i>) [A143]                  Sanderling (<i>Calidris alba</i>) [A144]                  Dunlin (<i>Calidris alpina</i>) [A149]                  Black-tailed Godwit (<i>Limosa limosa</i>) [A156]                  Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]                  Curlew (<i>Numenius arquata</i>) [A160]                  Redshank (<i>Tringa totanus</i>) [A162]</p>	<p>Changes to nutrient levels/pollutant release</p>		<p>along the boundary of the SPA. Construction activities could result in the release of suspended sediments and associated nutrients or in pollution incidents from machinery. This could occur during construction of new flood walls/embankments, and along access routes. This could lead to a reduction in water quality, adversely affecting the wetland habitats and the food supply of waterbirds. Ongoing maintenance of the hard defences could also result in the release of suspended sediments and nutrients and to pollution incidents, cumulatively impacting upon these wetland habitats. This could negatively impact on the conservation objectives of the species, through changes in population size and/or distribution and range.</p> <p>There are likely to be indirect, negative impacts from sedimentation during construction. These impacts are expected to be short-term and local in scale, and are therefore unlikely to impact significantly on attributes used to define conservation status.</p> <p>Increasing channel conveyance in the Carricklawn River could also result in negative effects on water quality during the work and following its completion, owing to a loss of habitat to filter nutrients and reduced carbon storage. Erosion and sediment supply may be exacerbated downstream of the modified conveyance area with potentially significant negative effects. There are likely to be intermittent impacts during flood events on the Lower Slaney Estuary and thus on the Wexford Harbour and Slobs SPA.</p>	<p>SOPs during design, construction and maintenance.</p> <p>Ornithological and habitat surveys should be carried out by a qualified ornithologist to inform option design and design-specific mitigation prior to commencement of the FRM work.</p> <p><u>Coastal defences:</u>                  Set hard defences back from the SPA boundary, wherever possible, to avoid impacting on designated wetland habitat.</p> <p><u>Increasing channel conveyance:</u>                  Careful timing of works to avoid periods of high flow that could result in increased sediment mobilisation.</p> <p>Hydraulic model testing should be used to inform design and ensure that it is such that in the project-level assessment, a conclusion of 'no likely significant effect' would be achieved.</p> <p>Only carry out maintenance of the</p>	<p>residual impact is possible during flood events or maintenance of the Carricklawn River.</p> <p>Provided the option design, construction and maintenance phases are carried out using effective mitigation, residual impacts should not be significant.</p>
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	Black-headed Gull ( <i>Chroicocephalus ridibundus</i> ) [A179] Lesser Black-backed Gull ( <i>Larus fuscus</i> ) [A183] Hen Harrier ( <i>Circus cyaneus</i> ) [A082] Little Tern ( <i>Sterna albifrons</i> ) [A195]				channel when absolutely necessary and, when doing so, avoid periods of high flow that could result in increased sediment mobilisation.  See also measures in Chapter 6.	
		Water level changes		The wetland habitat that supports designated waterbirds depends on a specific hydrological regime. Construction of flood walls/embankments could alter hydrological regimes, thereby impacting upon wetland habitats and the conservation objectives of the bird species that they support (population size, distribution and range).  However, significant changes to the hydrological regime are unlikely, as hard defences are local in nature and are not expected to adversely alter the level of inundation of habitat.	Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.  Hydraulic model testing should be used to inform design and ensure that it is such that in the project-level assessment, a conclusion of 'no likely significant effect' would be achieved.  See also measures in Chapter 6.	No
		Physical habitat disturbance	Land and air	The wetland habitats that support these species are likely to be vulnerable to physical disturbance arising from construction activities at the edge of the SPA. Physical disturbance by machinery and workers could lead to a loss of habitat adjacent to the hard defences and along access routes. This could reduce the available habitat and alter or reduce food sources for the protected bird species, negatively impacting on their conservation objectives (reduction in population size and/or distribution and range).  There is likely to be a direct loss of natural and	Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.  Ornithological and habitat surveys should be carried out by a qualified ornithologist to inform option design and design-specific mitigation prior to commencement of the	No

				<p>semi-natural habitat in the direct footprint and vicinity of the defences. These impacts are expected to be short-term and local in scale, and are therefore unlikely to impact significantly on attributes used to define conservation status.</p>	<p>FRM work.</p> <p>Hydrodynamic study/survey will be required to assess the likely implications of coastal hard defences to erosion rates in adjacent areas and assess the significance of any potential adverse impacts on wetland habitat.</p> <p>Set hard defences back from the SAC boundary, wherever possible, to avoid impacting on designated wetland habitat.</p> <p>See also measures in Chapter 6.</p>	
		Noise and visual disturbance		<p>These waterbird species will be sensitive to disturbance from machinery and workforces during construction of new flood walls and embankments and during maintenance of hard defences and increased conveyance in the Carricklawn River. This disturbance could cause displacement of populations which can require significant energy expenditure for the birds, which, if undertaken during winter months, could have an adverse impact on population trend and distribution.</p>	<p>Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.</p> <p>Avoid carrying out construction work in the over-wintering period (September - March).</p> <p>Avoid carrying out maintenance of hard defences or increased conveyance in the Carricklawn River in the over-wintering period</p>	No

					(September - March). See also measures in Chapter 6.	
		Introduction or spreading of alien invasive species	Land and surface water	Invasive species can spread rapidly through habitats, form dense thickets which can out-compete native plants and reduce availability of suitable habitat for bird species.	Carry out invasive species surveys and follow SOPs (see Table 6.1.1) See general mitigation in Chapter 6	No
<b>The Raven SPA (004019)</b>	Red-throated Diver ( <i>Gavia stellata</i> ) [A001] Common Scoter ( <i>Melanitta nigra</i> ) [A065] Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> ) [A395] Cormorant ( <i>Phalacrocorax carbo</i> ) [A017] Grey Plover ( <i>Pluvialis squatarola</i> ) [A141] Sanderling ( <i>Calidris alba</i> ) [A144]	Physical habitat disturbance  Noise and visual disturbance	Land and air	Several of the listed waterbird species, as well as other overwintering birds (Additional Special Conservation Interests) may at times use habitats situated in ecologically connected areas such as the Slaney River Valley SAC and the Wexford Harbour and Slobs SPA. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species from areas within the SPA, and/or a reduction in their numbers i.e. negatively affecting the range and/or population of the species.  There is likely to be a direct loss of natural and semi-natural habitat in the direct footprint and vicinity of the defences at Wexford Harbour and Slobs SPA. These impacts are expected to be short-term and local in scale, and are therefore unlikely to impact significantly on attributes used to define conservation status of these designated waterbirds.	Strictly adhere to best practice protocols and SOPs during design, construction and maintenance.  Ornithological and habitat surveys should be carried out by a qualified ornithologist to inform option design and design-specific mitigation prior to commencement of the FRM work.  Avoid carrying out construction work in the over-wintering period (September - March).  Avoid carrying out maintenance of hard defences or increased conveyance in the Carricklawn River in the over-wintering period (September - March).  See also measures in Chapter 6.	No

### 5.2.3 Conclusions

This NIS details the findings of the Stage 2 Appropriate Assessment conducted to further examine the potential direct and indirect impacts of proposed FRM works at Wexford AFA on the following European sites:

- Blackwater Bank SAC (002953)
- Long Bank SAC (002161)
- Raven Point Nature Reserve SAC (000710)
- Slaney River Valley SAC (000781)
- The Raven SPA (004019)
- Wexford Harbour and Slobs SPA (004076)

The Appropriate Assessment investigated the potential direct and indirect impacts of the proposed works on the integrity and interest features of the above European sites, alone and in-combination with other plans and projects, taking into account the sites' structure, function and conservation objectives. Where potentially significant adverse impacts were identified, a range of mitigation and avoidance measures have been suggested to help offset them (see Table 5.2.3 and Chapter 6).

As a result of this Appropriate Assessment, it has been concluded that after implementing the avoidance and mitigation measures suggested, the FRM measures at Wexford AFA may have some residual intermittent sedimentation impacts on the Slaney River Valley SAC and Wexford Harbour and Slobs SPA during flood events or during maintenance of the improved conveyance measures in the Carricklawn River. Project level assessment will be undertaken based on option designs and site surveys to further consider the attributes and targets of site specific conservation objectives.

The option design phase of the scheme should recognise this potential and incorporate measures to avoid scouring during flood events. The construction of the FRM measures and any ongoing maintenance should employ effective preventative measures to contain suspended solids and other pollutants. With these preventative measures in place, it has been concluded that the residual impacts will be insignificant.

## 6 AVOIDANCE AND MITIGATION MEASURES

### 6.1 GENERAL MITIGATION

General mitigation measures have been included in Chapter 6 of the FRMPs. Mitigation measures are recommended where the preferred options are predicted to have negative effects (whether minor, moderate or major). In some cases where positive effects are identified, actions may be recommended to maximise the potential benefit.

The principal mitigation recommendation is that the predicted negative effects should be considered further during the next stage of option development, when details of the option (e.g. alignment and footprint of flood defences) can be optimised through detailed feasibility studies and design in order to limit identified impacts on sensitive receptors.

Further environmental studies to inform the detailed design and construction methodology should be undertaken as appropriate. These studies may involve, but are not limited to, aquatic and terrestrial habitat surveys, ornithological, ground mammal and bat surveys and fish surveys. At project level, the preferred option design and construction methodology will be subject to a further screening for Appropriate Assessment and, where necessary, Appropriate Assessment carried out.

Before any works are carried out, detailed method statements and management plans (construction and environmental) should be prepared, including timing of works and information on the specific mitigation measures to be employed for each works area. These should be completed in the option design stage and should be subject to further Appropriate Assessment where potential impacts have been identified in this NIS for the FRMPs. Works should only be carried out once the method statements have been agreed with relevant authorities such as the NPWS and Inland Fisheries Ireland (IFI). At the project level it will not be sufficient to defer the production of construction method statements.

Consideration will be given to the planning and timing of construction and maintenance works. FRM works on adjoining reaches of rivers in different AFAs should not be scheduled to occur simultaneously with each other, or with other parallel projects.

Direct instream works such as culvert upgrades or proposed measures along the riverbank have the greatest potential for negative impacts during spawning / breeding and early nursery periods for aquatic protected species. No instream or potentially significantly damaging out of river works should occur during restricted periods for relevant species and consultation should be undertaken with Inland Fisheries Ireland (IFI) in this regard.

A designated environmental officer should be appointed for environmental management of each scheme. Monitoring of project level mitigation measures should be undertaken during and after works, to ensure effectiveness.

All works and planning of works will be undertaken with regard to the OPW Environmental Management Protocols (EMP) and Standard Operating Procedures (SOP), all relevant legislation, licensing and consent requirements, and recommended best practice guidelines at the time of construction or maintenance.

**Table 6.1.1: General Mitigation recommended in the FRMP**

Potential Impact	Proposed Mitigation
<p><b>Temporary disturbance and destruction of existing habitats and flora, and the displacement of fauna, along the river corridors.</b></p>	<p>Good planning and timing of works to minimise footprint impacts. Where applicable, prior to any vegetation clearance an appropriately qualified ecologist should be contracted to undertake a 'pre-vegetation clearance' survey for signs of nesting birds and protected and important species e.g. otters, kingfisher etc. Should important species be found during surveys the sequential approach of avoid, reduce or mitigate should be adopted to prevent significant impacts with advice from appropriately qualified professional. Vegetation and tree clearance should be minimised and only occur outside the main bird nesting season. If this seasonal restriction cannot be accommodated, a suitably qualified ecologist with experience in nest-finding will be required to check all vegetation for nests (under licence from NPWS to permit potential disturbance to nesting birds) prior to removal/trimming. At sites where there are populations of over-wintering birds, to avoid disturbance, works should not be undertaken between September and March. Following construction, replanting and landscaping, or natural revegetating, should be undertaken in line with appropriate guidelines that aim to improve local biodiversity and wildlife, therefore will give medium and long term benefits to the biodiversity, flora and fauna of the working areas. Where possible, original sediment/soil should be reinstated to original levels to facilitate natural restoration and recolonisation of habitat. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and consider integration of design as part of blue/green infrastructure plans and habitat enhancement where possible</p>
<p><b>Temporary displacement of otters, birds, fish and other fauna during the construction period.</b></p>	<p>Good planning, good timing of works and sensitive construction methods are essential. Adherence to best practice at the time of construction or maintenance, e.g. NRA construction guidelines on Crossing of Watercourses, on Treatment of Otters etc., Eastern Regional Fisheries Board Requirements for 'Protection of Fisheries Habitat during Construction and Development Works at River Sites' and IFI 'Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters'. Proposed measures should be designed to minimise impact on otter habitat and shall include otter passes and fishways / ladders where possible. Pre-construction otter survey on all watercourses and any derogation licences applied for, where necessary. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.</p>
<p><b>Impact on European sites, habitats and species from construction or operation of FRM scheme.</b></p>	<p>Good planning and timing of works, and good construction and management practices to keep impacts to a minimum. Site and species specific mitigation provided in NIS for the FRMPs including site specific surveys, timing of works etc. Provide local, connected, compensatory habitat if loss of area of Natura site is unavoidable. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.</p>
<p><b>Spread of invasive species during construction.</b></p>	<p>Pre-construction survey for alien invasive species along all watercourses and adjoining lands where necessary, e.g. for Himalayan balsam and Japanese knotweed. Cleaning of equipment and machinery along with strict management protocols to combat the spread of invasive species. Preparation of invasive species management plan for construction and maintenance-related activities, if invasive species are recorded during the pre-construction surveys. Any imported materials will need to be free from alien invasive species. Post-construction survey for invasive species. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.</p>
<p><b>Culverting impacts on faunal passage, where applicable.</b></p>	<p>Ledges and adequate access may be required for some culverts to allow continued passage of fauna. Consideration will be given to setting back walls from the river bank as an alternative to culverts where feasible. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.</p>



Potential Impact	Proposed Mitigation
<b>Impacts on Freshwater Pearl Mussel</b>	Where freshwater pearl mussels may be impacted, an appropriate FPM expert should be consulted for surveys and in planning, scheme design and project level mitigation. Any relevant FPM Management Plans and SOPs should be adhered to and relevant best practice adhered to.
<b>Dredging impacts on biodiversity, flora and fauna.</b>	Minimise requirement for in-stream works through good planning. Good dredging practices should be implemented, along with consultation with environmental bodies e.g. IFI, on methodology and appropriate timing to cause the least amount of damage, habitat loss, and sedimentation. Dredging works should be carried out during low flow conditions and should cease during heavy rainfall and flood conditions, to reduce suspended solids in the river. Spoil and removed vegetation material from the river should be stored back from the river and a vegetation buffer zone is to be retained, in order to reduce the run-off of suspended solids back into the watercourse. In stream works should be phased to leave undamaged refugia to maintain aquatic macroinvertebrates populations within the river channel. No machinery should be allowed to operate within the river flow without full consultation and approval of the methodology of the proposed works by the relevant statutory bodies. Scoping or relevant specialist ecological surveys during the planning stage and prior to any construction works. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.
<b>Removal of soil and rock material via dredging and excavation works during construction.</b>	Re-use material where possible on site for either embankments or landscaping. Consideration for use of material such as geojute or coir mesh on embankments above rivers or streams to hold the soil allowing time for vegetation to establish, while avoiding erosion. Where applicable it is recommended that coarse aggregates (cobble and gravel) removed from the river channel should be stockpiled for replacement and rehabilitation in the reformed river bed. Such material will be stored away from the river bank to ensure that runoff from the material does not affect water quality in the river in the form of increased suspended solids.
<b>Temporary disturbances of water quality during the construction phase</b>	Good management and planning to keep water quality disturbance to a minimum. Any potential water quality issues from construction should be contained and treated to ensure no damage to natural waterbodies. Dredging and construction will have to be planned appropriately, using Best Available Techniques / Technology (BAT) at all times, to ensure water quality issues are kept to a minimum, with no significant adverse effects. Guidelines such as CIRIA Document C532 - Control of Water Pollution from Construction Sites and CIRIA documents C521 - SUDS -Design manual for Scotland and NI, and C523 - SUDS -Best Practice Manual to be adhered to. Development and consenting of environmental management plan prior to commencement of works. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.
<b>Potential for pollution incidents during the construction phase.</b>	Minimise requirement for in-stream works through good planning. Strict management and regulation of construction activities. Provision of good facilities in construction areas to help prevent pollution incidents. Preparation of emergency response plans. Good work practices including; channelling of discharges to settlement ponds, construction of silt traps, construction of cut-off ditches to prevent run-off from entering watercourse, hydrocarbon interceptors installed at sensitive outfalls, appropriate storage of fuel, oils and chemicals, refuelling of plant and vehicles on impermeable surfaces away from drains / watercourses, provision of spill kits, installation of wheel wash and plant washing facilities, implementation of measures to minimise waste and ensure correct handling, storage and disposal of waste and regular monitoring of surface water quality. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.
<b>Potential requirement for maintenance dredging as siltation of the channel and excess vegetative growth will naturally occur.</b>	Design should aim to ensure WFD objectives are not compromised and all options will be subject to a WFD Assessment. Any negative impact on the status of a water body will only be permitted under the WFD if the strict conditions set out in WFD Article 4 are met. Where appropriate, watercourses

Potential Impact	Proposed Mitigation
	affected by a scheme should be subjected to a River Hydromorphology Assessment Technique survey (RHAT) for pre and post scheme scenarios. Adhering to good work practices including; diversion of discharges to settlement ponds, construction of silt traps, construction of cut-off ditches to prevent run-off from entering excavations, granular materials placed over bare soils. If a channel is maintained on an as required basis, using good planning, timing and BAT, there should be only minimal temporary disturbance to the local water quality. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.
<b>Alterations to coastal processes</b>	Detailed surveys and hydrodynamic modelling to inform detailed design of coastal works to ensure no negative impacts on coastal processes.
<b>Culverting, dredging and impoundment impacts on fisheries and potential to impede fish passage.</b>	Instream works including any culverting, provision of sluice gates, penstocks and dredging operations to be undertaken during the period July to September inclusive, following consultation and agreement with IFI. All works affecting any watercourse both temporary and permanent will be agreed with the relevant drainage and fishery authorities. Project level aquatic ecology and fisheries surveys and assessment, based on option design, to be undertaken prior to consenting. Where possible bottomless culverts should be used so the natural stream bed can be retained. Proposed measures should be designed to minimise impact on fish spawning grounds, migration and habitats. Adhere to OPW EMP and SOP or other relevant best practice at the time of development and maintenance.

### 6.1.1 Avoidance of Impacts by Selecting Alternative Options and/or Design Solutions

This has been undertaken for all locations and options through the option development and integrated multi-criteria assessment process. Environmental constraints and opportunities highlighted through the SEA and AA processes were used to screen out environmentally unacceptable flood risk management measures in each location and then inform the identification and development of options, prior to the detailed option assessment process. This process, described in detail in Chapter 3.1.3, ensures, that the options selected from the multi-criteria option assessment process were generally those that had a lower risk of significant negative impacts on European sites and that the likely impacts of the preferred flood risk management options could potentially be minimised.

### 6.1.2 Avoid, or Reduce the Scale of, Identified Impacts through Option Development

The outline measures identified for the preferred options following the option assessment process have been reviewed in order to identify and recommend mitigation to avoid, or reduce, significant effects. Further avoidance of impacts will be achieved through careful design at the next stage of detailed option development as required.

Specific mitigation measures, other than those within the individual impact assessment sections in Chapter 5 include:

- Where possible, defences should be set back from the waterbodies and sensitive environmental habitats and species.
- Utilise environmentally sensitive techniques;
- Consideration of potential negative impacts associated with future developments at the planning stage, before development is allowed to proceed;
- Generally, areas to be coffer dammed and de-watered should be kept to the minimum required;
- Except where absolutely necessary, machinery should operate from the bankside/shore, i.e. “in the dry”;
- The contents and objectives of the South Eastern River Basin Management Plan should be considered during the option design phase;
- A full work methodology should be developed prior to the commencement of any on site works;
- Works should only be carried out after a method statement, detailed plans and timing of works have been agreed with the National Parks & Wildlife Service and Inland Fisheries Ireland; and

Timing of works in environmentally sensitive areas should be a key consideration, e.g. carrying out construction outside of the main breeding/wintering seasons as appropriate.

### 6.1.3 Mitigation of Loss of Habitats and Species

- Avoid unnecessary vegetation clearance, particularly trees. Where possible, retain vegetated buffer strips. Ensure that reinstatement of appropriate, local riparian vegetation is carried out once works are completed.
- Undertake surveys and ecological assessments in relation to biodiversity, flora and fauna;
- If scope is present for applying basic instream enhancement techniques to develop suitable spawning and nursery habitats for fish, this should be pursued. The IFI Guidelines referenced below in 6.4 should be consulted in this regard during option design.
- To prevent the spread of invasive aquatic / riparian species, all plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) must be thoroughly cleaned down using a power washer unit and washed into a dedicated and contained area, prior to arrival on site. A sign off sheet must be maintained by the contractor to confirm cleaning. Imported materials must be free from alien invasive species.

### 6.1.4 Mitigation in relation to Lamprey & Salmonids

- Surveys should be carried out for lamprey, salmonids and other aquatic species of conservation concern, e.g. white-clawed crayfish.
- Before any area is de-watered, suitable juvenile lamprey habitat, and suitable salmonid nursery habitat in adjacent areas of river should be identified if present.

- Following installation of coffer dams, the enclosed waters should be electrofished. Fish removal must be completed by IFI or persons authorised under Section 14 of the Fisheries Consolidation Acts 1959 (as amended).
- Pumps used for de-watering should be provided with mesh screens to avoid taking in fish.

## 6.2 MITIGATION OF SUSPENDED SOLIDS POLLUTION

The construction method statement should indicate what measures will be taken to avoid sediment or soil loss associated with all aspects of the construction and how these will be monitored for effectiveness. These mitigation measures in combination with an appropriate considerable buffer area between the works and the river will serve to reduce the likelihood of silt mobilisation. Measures to mitigate against suspended solids pollution should include (but not be limited to):

- The amount of bare ground created by excavation and vegetation removal should be minimised to prevent run-off;
- Works should be carried out ideally during a period of settled weather with no flood risk which will allow sufficient time for construction materials to settle;
- The construction method statement should include planning / contingency measures to be undertaken in the event of the risk of a flood event;
- [Where relevant] embankment material should be selected that has low silt content;
- Where construction of flood defences poses a significant risk of suspended solids and other pollution, the area of the proposed works should be isolated using coffer dams. If de-watering is necessary to allow works to proceed, water pumped from the contained area should be passed through a settlement pond or pre-fabricated settlement tanks with oil interceptor before being discharged to the river;
- For construction activities close to the river bank, eroded sediments should be retained on site with erosion and sediment control structures such as sediment traps, silt fences and sediment control ponds. Sediment ponds and grit/oil interceptors should be placed at the end of drainage channels. Sediment control measures should be regularly monitored for effectiveness.

## 6.3 MITIGATION OF OTHER POLLUTION

The construction Method Statement should indicate what measures will be taken to avoid pollution associated with all aspects of the construction and how these will be monitored for effectiveness. Measures to mitigate against pollutants being discharged may include (but not be limited to):

- Raw or uncured waste concrete should be disposed of by removal from the site;
- Washing out of truck mixers, concrete pumps, skips and other items of plant and equipment needing to be cleaned of concrete after use must only take place at a designated area, away from watercourses.
- Direct discharges of waste water onsite to watercourses, ditches or roadside drains will not be permitted. Waste water will be directed to a suitable treatment area within the site and treated to an appropriate standard prior to discharge by an approved method.
- Biodegradable fuels and lubricants should be used where possible;
- All fuels, lubricants and hydraulic fluids will be kept in secure bunded areas at a minimum of 10m from the river. The bunded area will accommodate 110% of the total capacity of the containers within it. Containers will be properly secured to prevent unauthorised access and misuse.

- The Contractor shall indicate designated areas for fuel transfer away from any watercourses or drainage channels. The refuelling of mobile plant in the working area will be undertaken well away from any drains or water bodies. Vehicles will not be left unattended during refuelling
- Any waste oils or hydraulic fluids will be collected, stored in appropriate containers and disposed of offsite in an appropriate manner;
- Spill kits will be made available and an effective spillage procedure will be put in place with all staff properly briefed.
- All plant shall be well maintained with any fuel or oil drips attended to on an ongoing basis.
- Foul drainage from site offices etc. should be connected to a local sewer or removed to a suitable treatment facility or discharged to a septic tank system constructed in accordance with EPA guidelines;
- Tools and equipment are not to be cleaned in rivers;
- Chemicals shall be stored in sealed containers in the site lockup;
- Any chemicals shall be applied in such a way as to avoid any spillage or leakage; and
- If temporary toilet facilities are used, the location of these facilities must be suitable and they must be maintained by a licensed contractor.

## 6.4 GUIDELINES

The following guidelines should be consulted during the detailed planning of the works phase.

- Guidelines on Protection of Fisheries during Construction Works in or adjacent to Waters, Inland Fisheries Ireland (2016).
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites', Eastern Regional Fisheries Board (2003).
- Best practice toolkit of freshwater morphology measures developed by the Freshwater Morphology Programmes of Measures and Standards (POMS) study under the Shannon International River Basin District (ShIRBD) project.
- Good Practice Guidelines on the Control of Water Pollution from Construction Sites developed by the Construction Industry Research and Information Association (CIRIA).
- Pollution prevention guidelines (PPGs) in relation to a variety of activities developed by the Environmental Agency (EA), the Scottish Environmental Protection Agency (SEPA) and the Northern Ireland Environment Agency (NIEA).

The OPW's Environmental Management Protocols and Standard Operating Procedures (OPW, 2011) set out how regional management staff manage a range of environmental aspects, including programming of works to accommodate certain environmental windows or restrictions on timing of works, and recording of data. A total of 7 No. Standard Operating Procedures (SOPs) are applied during operational works. These SOPs set out actions designed to eliminate, or substantially reduce likely impacts to identified species and their associated habitats. These include:

- Environmental Drainage Maintenance Guidance Notes (10 Steps to Environmentally Friendly Maintenance)
- Lamprey SOP
- Crayfish SOP
- Otter SOP
- Mussel SOP
- Invasive Species SOP
- Zebra Mussel SOP
- Bank Protection
- Bush Cutting / Branch Trimming.

## 7 CONCLUSIONS

This NIS details the findings of the Stage 2 Appropriate assessment conducted to further examine the potential direct and indirect impacts of the FRM Options advanced in the Final FRMP for UoM12, incorporating the AFAs of Baltinglass and Wexford on the following European sites:

- Blackwater Bank SAC (002953)
- Long Bank SAC (002161)
- Raven Point Nature Reserve SAC (000710)
- Slaney River Valley SAC (000781)
- The Raven SPA (004019)
- Wexford Harbour and Slobs SPA (004076)

These sites were identified by a screening exercise (see Chapter 3.5, 3.6 and 3.7 that determined the risk of significant effects in relation to the above sites. The screening exercise was conducted using the source – pathway – receptor method, examining surface water, groundwater, land and air pathways.

The Appropriate Assessment (Chapter 5) has investigated the potential direct and indirect impacts of the proposed works on the integrity and interest features of the above European sites for each of the AFAs where FRM Options have been proposed in the Final FRMP, alone and in-combination with other plans and projects, taking into account the sites' structure, function and conservation objectives.

Where potentially significant adverse impacts were identified, a range of mitigation and avoidance measures have been suggested to help eliminate them by design or reduce them to acceptable levels (see Chapter 6).

The potential physical flood relief works or 'Schemes' set out in the FRMPs that have been developed through the CFRAM Programme are to an outline design, and are not at this point ready for construction. The potential routes for the implementation of physical works are set out in Section 8.1 of the FRMP. Project-level assessment will take account of the potentially viable measures identified in the Plan, but will involve the consideration of alternatives at the project-level and, as appropriate, EIA and AA, including the definition of necessary mitigation measures at the project-level. Only schemes/measures that are confirmed to be viable following project level assessment will be brought forward for Exhibition/Planning and detailed design.

The appropriate assessment has identified that the FRM measures proposed at Wexford AFA may have long term residual impacts on Slaney River Valley SAC and Wexford Harbour and Slobs SPA, in respect of intermittent residual sedimentation impacts on wetland habitats during flood events or during maintenance works on the Carricklawn River.

The detailed design of FRM measures at Wexford AFA should recognise this potential and incorporate measures to avoid scouring. The construction of the FRM measures and any ongoing maintenance should employ effective preventative measures to contain suspended solids and other pollutants. With these preventative measures in place, it has been concluded that the residual impacts will be insignificant.

As a result of this Appropriate Assessment it has been concluded that provided the avoidance and mitigation measures suggested are adopted at the project stage, the proposed draft FRM measures in the FRMP for UoM11, UoM12 and UoM13 will not have a significant adverse impact on the above European sites. To confirm this conclusion, a checklist, taken from DEHLG (2009) has been completed overleaf:

**Table 7.1.1: Integrity of Site Checklist (from DEHLG, 2009)**

<b>Conservation objectives: does the project or plan have the potential to:</b>	<b>Y/N</b>
<b>Cause delays in progress towards achieving the conservation objectives of the sites?</b>	<b>N</b> - Following mitigation, no significant adverse residual impacts have been identified that will prevent achievement of the conservation objectives of the assessed sites.
<b>Interrupt progress towards achieving the conservation objectives of the sites?</b>	<b>N</b> - Following mitigation, no significant adverse residual impacts have been identified that will prevent achievement of the conservation objectives of the assessed site.
<b>Disrupt those factors that help to maintain the favourable conditions of the site?</b>	<b>N</b> - Potential adverse impacts via surface water; land and air; and groundwater pathways identified during the screening process can be mitigated against.
<b>Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?</b>	<b>N</b> - Potential adverse impacts on the habitats and species of the four SACs and two SPAs are not expected as impacts can be avoided by implementing the mitigation and avoidance measures detailed.

<b>Other objectives: does the project or plan have the potential to:</b>	<b>Y/N</b>
<b>Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?</b>	<b>N</b> - Potential adverse impacts from suspended solid and nutrient release are not expected as measures can be included within working protocols to ensure potential impacts are effectively mitigated.
<b>Change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?</b>	<b>N</b> - Potential adverse impacts relating to hydrological status and water quality have been identified which could impact on the functioning and dynamics of the site, however, these are not expected to be significant given the mitigation measures detailed to ensure potential impacts are effectively mitigated.
<b>Interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?</b>	<b>N</b> - Potential adverse impacts from changes to the hydrological regime and suspended solid/nutrient/pollutant release are not expected, as measures can be included within working protocols to ensure potential impacts are effectively mitigated.
<b>Reduce the area of key habitats?</b>	<b>N</b> - Potential adverse impacts on the habitats of the four SACs and two SPAs are not expected given the mitigation measures that have been detailed.
<b>Reduce the population of key species?</b>	<b>N</b> - Potential impacts to the habitats supporting the aquatic, riparian and marine species for which the SACs and SPAs are designated, are not expected as impacts can be avoided by implementing the mitigation measures detailed.



<b>Change the balance between key species?</b>	<b>N</b> - Potential impacts on the aquatic, riparian and marine species for which the SACs and SPAs are designated, are not expected as impacts can be avoided by implementing the mitigation measures detailed.
<b>Reduce diversity of the site?</b>	<b>N</b> - The identified mitigation measures to protect designated habitats and species will ensure that the current diversity of the sites is maintained.
<b>Result in disturbance that could affect population size or density or the balance between key species?</b>	<b>N</b> - Potential impacts to the aquatic, riparian and marine species for which the SACs and SPAs are designated, are not expected as impacts can be avoided by implementing the mitigation measures detailed.
<b>Result in fragmentation</b>	<b>N</b> - The proposed measures will not result in fragmentation of habitats.
<b>Result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding etc.)?</b>	<b>N</b> - Potential adverse impacts on SAC and SPA habitats are not expected as impacts can be avoided by implementing the mitigation measures detailed so there will be no loss of, or reduction of, key features.

## REFERENCES

**Council Directive 2001/42/EC** *on the Assessment of the Effects of Certain Plans and Programmes on the Environment*

**Council Directive 92/43/EEC** *on the Conservation of Natural Habitats and of Wild Fauna and Flora*

**Council Directive 2009/147/EC** *on the Conservation of Wild Birds*

**DEHLG** (2009 –rev. 2010) *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities*

**EC** (2000) *Managing Natura 2000 sites: the provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC*

**EC** (2002) *Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.*

**EC** (2007) *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC*

**EC** (2011) *Guidelines on the Implementation of the Birds and Habitats Directives in Estuaries and Coastal Zones with particular attention to port development and dredging*

**EC** (2013) *Guidelines on Climate Change and Natura 2000 Dealing with the impact of climate change on the management of the Natura 2000 Network of areas of high biodiversity value*

**EPA** (2012) *Integrated Biodiversity Impact Assessment best practice guidance; Streamlining AA, SEA and EIA Processes, Best Practice Guidance*

**NPWS** (2014) *The Status of EU Protected Habitats and Species in Ireland 2013 – Overview Report*

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## **APPENDIX A**

### **SUMMARY OF FLOOD RISK MANAGEMENT METHODS AND THEIR HIGH LEVEL IMPACTS**

## APPENDIX A: TABLE OF FLOOD RISK MANAGEMENT METHODS AND THEIR HIGH LEVEL IMPACTS

FRM Method	Likely Positive Impacts (+)	Likely Negative Impacts (-)
<b>Do Nothing</b> No new flood risk management measures and abandon existing defences and maintenance		
<i>Do Nothing</i>	Unlikely to be significant positive impacts at a strategic level, however there is the potential for local improvements to habitats and biodiversity in the vicinity of previously maintained defences.	Potential for significantly increased flood risk to human health, properties and infrastructure.
<b>Existing Regime</b> Continue existing flood risk management practices		
<i>Existing Regime</i>	Unlikely to be significant positive impacts at a strategic level.	Potential for increased flood risk to human health, properties and infrastructure due to climate change. Existing defence works may be interfering or causing deterioration to the ecological requirements of species and habitats and the relevant conservation objectives.
<b>Do Minimum</b> Additional minimum measures to reduce flood risk in specific areas. Includes channel or flood defence maintenance works / programme.		
<i>Do Minimum</i>	Unlikely to be significant positive impacts at a strategic level.	Unlikely to be significant negative impacts at a strategic level. However method is non-specific.
<i>Maintenance Programme</i>	Unlikely to be significant positive impacts at a strategic level.	Unregulated maintenance of existing flood defence measures has the potential to result in impacts such as pollution, changes in sedimentation, disturbance, deterioration, damage and other impacts on species distribution arising from maintenance activities. It is therefore assumed that maintenance programmes already in place recognise the requirements of the 2011 Regulations and that ongoing or future planned maintenance of existing flood defence measures incorporates any necessary mitigation measures such as conducting works out of season in sensitive areas and implementing pollution prevention measures. Having regard to this is therefore considered that maintenance is unlikely to have significant negative environmental impacts upon designated sites. Unlikely to be significant negative impacts at a strategic level.
<b>Planning and Development</b> Zoning of land for flood risk appropriate development, prevention of inappropriate development, and / or review of Local Areas Plan (LAP).		
<i>Planning and Development</i>	Unlikely to be significant positive impacts at a strategic level, however will prevent future additional flood risk from being created.	Unlikely to be significant negative impacts at a strategic level, however will prevent some developments which may curtail economic growth in certain areas.
<b>Building Regulations</b> Regulations on finished floor levels, flood proofing, flood resilience and SuDS.		
<i>Building Regulations</i>	Unlikely to be significant positive impacts at a strategic level, however will prevent	Unlikely to be significant negative impacts at a strategic level.

	future additional flood risk from being created.	
<b>Catchment Wide Sustainable Drainage Systems (SuDS)</b> Recommendations for future development drainage systems.		
<i>SuDS</i>	Slight direct positive impacts through reduction of flood risk and impacts to property and infrastructure.	Likely to be temporary negative impacts through disturbance and inconvenience to the local population during construction.
<b>Land Use Management (NFM)</b> Runoff Control – Overland flow management through changes in land use and / or agricultural practices. River / Floodplain Restoration - Creation of wetlands, restoration of meanders, in-channel flow retardation, floodplain flow retardation and riparian buffer zones. Coastal Restoration - Attenuation waves and coastal surge through the creation and restoration of natural habitats.		
<i>Runoff Control</i>	<p>Implementation of runoff control would slow down and store some potential flood waters, which will benefit the downstream population through reduction of flood risk and impacts to property and infrastructure during high frequency flood events. Done correctly in the appropriate locations, non-structural land use management has the potential to have positive environmental benefits through habitat creation, increased biodiversity and natural flood management.</p> <p>The creation of habitat and / or land management practices can help to improve attenuation of nutrients and reduce the loss of sediments, leading to improvements in water quality.</p> <p>By increasing habitats such as woodland and wetland, there is potential to increase carbon storage.</p> <p>Enhancing and restoring wetlands may lead to benefits to habitats and species.</p> <p>Runoff control may enhance the productivity of cultivated land and semi natural grassland by protecting soils from erosion and loss of nutrients, and through providing a more diverse habitat for pollinators and biological control of pests and disease.</p> <p>Run off control in drinking water catchments may help to reduce treatment requirements for drinking water.</p> <p>There may be benefits to freshwater fisheries from improved water quality and reduced sedimentation.</p> <p>The effects on recreation, wildlife watching and landscape are generally likely to be positive, as runoff control should improve habitat diversity and biodiversity.</p> <p>The introduction of riparian buffer zones is unlikely to have negative impacts on habitats and species.</p>	<p>If misplaced, non-structural land use management has the potential to be either ineffective or actually detrimental to the local environment, through loss or displacement of native species.</p> <p>Some areas of productive agricultural land may be lost.</p> <p>An increase in the wetness of cultivated land and semi-natural grassland ecosystems may increase the prevalence of some livestock pests.</p>
<i>River / Floodplain Restoration</i>	<p>Reconnection of the river with the floodplain will enhance the natural storage capacity and provide slight direct positive social impacts through reduction of flood risk and impacts to property and infrastructure during high frequency flood events.</p> <p>Restoration of habitat within the river and floodplain, and reduced erosion of the river bed and banks can help to filter nutrients and reduce sediments; which can lead to improved water quality.</p>	<p>There is the potential for the direct loss of agricultural land with this method.</p> <p>The existing ecosystems in the area for restoration will be directly impacted in the short term through a potential change of land use, habitat and hydromorphology. These impacts could be positive or negative in the long term.</p> <p>If parkland areas are used the land could become unsuitable for some types of recreation, temporarily during a flood event or in the medium to long term through changing the wetness of the land.</p>

	<p>There is the potential for improved fish habitats. Greater areas of river and floodplain wetland habitat will provide increased biodiversity.</p> <p>River and floodplain restoration in drinking water catchments may help to reduce treatment requirements for drinking water.</p> <p>The effects on recreation, wildlife watching and landscape are generally likely to be positive, with improved habitat diversity and biodiversity.</p> <p>With improvements to biodiversity and water quality, this method may help to improve WFD status.</p> <p>With wetland enhancement there may be benefits to the connectivity and health of wetland ecosystems, and there may be benefits to carbon storage.</p> <p>There may be local improvements in recreational fishing in the area with a more natural river course and improved water quality.</p>	<p>There could be reduced seasonal access to riparian areas for recreational activities from floodplain re-connection.</p> <p>In-stream works can release fine sediments which adversely affect fish spawning gravels.</p> <p>There is the potential for impacts on the local landscape from this; however these could be positive or negative, depending on the finished look of established vegetation.</p>
<i>Coastal Restoration</i>	<p>Coastal restoration can attenuate waves and coastal surge through the creation and restoration of natural habitats, reducing the potential flood risk.</p> <p>Enhancement of coastal natural habitats can help to protect from coastal erosion, provide carbon storage, and help to adapt to future climate change.</p> <p>Restoration and creation of intertidal areas may help to provide nurseries for fish.</p> <p>By improving the coastal environment there is likely to be benefits to recreation, amenity and wildlife experience.</p>	<p>Works could cause disturbance to feeding and breeding birds.</p> <p>Restoration and creation of intertidal areas could lead to some loss of productive land.</p> <p>Works could restrict or alter access to coastal areas which could cause short or long term, local negative effects.</p> <p>In areas of longshore drift, works in one location can have implications for sediment distribution in others.</p> <p>Beach re-charge could affect sediment sources for offshore sand banks.</p>
<p><b>Strategic Development Management</b> For necessary floodplain development, with integration of structural measures into development design and zoning.</p>		
<i>Strategic Development</i>	<p>Unlikely to be significant positive impacts at a strategic level, however will reduce flood risk to human health.</p>	<p>Unlikely to be significant negative impacts at a strategic level.</p>
<p><b>Upstream Storage</b> Online or offline, single or multiple storage areas, with potential for embankments / engineered walls. Online storage refers to creating a dam and reservoir across the floodplain of a river, often with an outlet control structure such as an undershot culvert or sluices, to control outlet flow, and with an overflow weir and spillway. Offline storage is an area of floodplain that is embanked to prevent or control flooding within the storage area or wash-land during minor events.</p>		
<i>Storage</i>	<p>There will be slight direct positive social impacts through the regulation of flow and reduction of flood risk and impacts to property and infrastructure.</p> <p>Recreational access to the waterway for some activities could be improved with sensitive scheme design.</p> <p>Offline storage areas should ideally be located away from the existing riparian zone and can then provide environmental benefits through the creation of high biodiversity wetlands.</p> <p>Prolonged flooding in offline storage could increase the sediment store in the floodplain and reduce sediments stored in rivers, reducing downstream sedimentation and potential flood risk.</p>	<p>Online storage dams should not be placed in areas of high biodiversity or on migratory routes, therefore not within SACs or SPAs. However if the normal discharge volume is to be maintained they should be able to be placed upstream of an SAC or SPA.</p> <p>Offline storage areas should not be developed within an SAC or SPA where the designated habitat and / or species are vulnerable to flooding. This method could be further investigated within designated areas that require or are not sensitive to periodic inundation.</p> <p>Storage is likely to cause or exacerbate the disconnection between the river and the floodplain.</p> <p>There is the potential for disruption to natural processes, loss of habitat and</p>

		<p>potentially negative effects on water quality (due to loss of habitat to filter nutrients) and carbon storage.</p> <p>Erosion can be exacerbated upstream and / or downstream of storage areas with potentially significant negative effects.</p> <p>There is the potential for a reduction in pollinating services and pest and disease control due to the loss of natural habitat from direct footprint impacts.</p> <p>Embankment of rivers to create storage areas can result in the loss of natural riparian habitat that filters and removes nutrients from agriculture.</p> <p>There is the potential for long term changes to land use from direct footprint impacts.</p> <p>Loss of natural habitat and reduced biodiversity can impact recreational activities like angling and wildlife watching.</p> <p>Some storage areas may use parkland and recreational grounds which could render the land unsuitable for some types of activities, either temporarily during a flood event, or in the medium to long term through changing accessibility to the area.</p> <p>Changes to river flow and water levels could affect navigation channels.</p> <p>Prolonged flooding in offline storage could increase the sediment store in the floodplain and reduce sediments stored in rivers, disrupting the natural sediment regime.</p> <p>Drinking water quantity may be negatively impacted if using reservoirs for flood storage, as retaining lower water levels could affect water supply.</p> <p>There is likely to be temporary negative impacts through disturbance and inconvenience to the local population during construction of storage areas.</p>
<p><b>Improvement of Channel Conveyance</b>                  Deepening channel, widening channel, realigning long section, removing constraints and / or lining smoothing channel.</p>		
<p><i>Increase Conveyance</i></p>	<p>There will be slight direct positive social impacts from increasing conveyance through the regulation of flow and reduction of flood risk and impacts to property and infrastructure.</p> <p>Removal of channel constraints provides the opportunity to remove barriers to fish migration. This could improve production of salmon when combined with other river restoration actions. The design of the new structures should build in requirements for migratory fish and to diversify in-stream habitat where possible. Daylighting culverts may reduce barriers to fish barriers and improve habitats.</p>	<p>It may be possible to use this method within some designated areas depending on the species and habitats present. Short sections of increased channel conveyance are unlikely to have significant impacts upon species and habitats, however over long sections of river where there may be significant in-channel losses of protected vegetation and habitat this may be unacceptable. Culverting may interfere with the hydrology of a river and its structure and function and thus may have implications for habitats where natural hydrological processes need to be maintained and/or restored. The SAC and SPA designation criteria will need to be investigated in this instance for important in-channel habitats and species.</p> <p>Culverting of an entire AFA has the potential for significant negative environmental impacts within a designated site, as it replaces the natural hydrological and ecological regime with an artificial bypass. Culverting is unlikely to be an acceptable standalone method within a designated site. Culverting however should have no hydraulic impacts upstream of a designated site.</p> <p>Increasing conveyance modifies the storage and flow of water, causing or</p>



		<p>exacerbating disconnection between the river and the floodplain. There can be disruption to natural processes, the loss of habitat and potentially negative effects on water quality, due to loss of habitat to filter nutrients, and reduced carbon storage.</p> <p>There is the potential for increased downstream flood risk.</p> <p>Erosion can be exacerbated upstream and / or downstream of modified conveyance areas with potentially significant negative effects.</p> <p>There is likely to be the direct loss of habitat and displacement of species in the vicinity of works, however these may re-establish in the medium to long term.</p> <p>There is the potential for a reduction in pollinating services and pest and disease control due to the loss of natural habitat from direct footprint impacts.</p> <p>There is the potential for long term changes to land use from direct footprint impacts.</p> <p>Loss of natural habitat and reduced biodiversity can impact recreational activities like angling and wildlife watching.</p> <p>There is the potential for reduced water quality during construction from increased sediments.</p> <p>There may be temporary negative visual impacts during in-channel works.</p>
<p><b>Hard Defences</b>                  Fluvial flood walls or flood embankments. Rehabilitate and / or improve existing defences                  Tidal Barrages                  Coastal Flood walls</p>		
<p><i>Fluvial flood walls or flood embankments</i></p>	<p>Hard river defences can deliver benefits by regulating water flow and reducing flood risk; therefore protecting human health, properties and infrastructure. Depending on their design, some defences can improve access for some types of recreation.</p>	<p>Hard defences can interfere with natural process, by causing some or all of the floodplain to be disconnected from the river, which can lead to the loss of natural habitat to capture, filter and recycle nutrients or pollutants. This can lead to a reduction in water quality.</p> <p>There is likely to be a direct loss of natural and semi-natural habitat in the direct footprint and vicinity of the defences. There may be indirect negative downstream impacts from sedimentation during construction.</p> <p>Erosion may also increase either side of the defences due to changes in river processes.</p> <p>Defences could impact negatively on river morphology and sediment dynamics, and affect WFD status and classification.</p> <p>Loss of natural habitat and biodiversity can reduce the quality of the environment for recreation and wildlife watching.</p> <p>Within the urban landscape, direct defences have potentially negative effects through disrupting the setting and view of the river and floodplain.</p> <p>Defences may alter the setting of heritage sites.</p> <p>There is the potential for downstream increased flood risk.</p> <p>Direct defences have the potential for negative effects on freshwater fisheries due</p>

		<p>to the loss of in river and riparian habitat and sedimentation.</p> <p>There may be temporary negative impacts through disturbance and inconvenience to the local population during engineering works.</p> <p>Flood walls and embankments are unlikely to have negative impacts upon designated sites, unless the footprint of the structure is directly on the designated feature, or if they cause a greater flood hazard downstream of the feature in a vulnerable designated area.</p>
<i>Tidal Barriers</i>	<p>Tidal barrages can deliver benefits by regulating water flow and reducing flood risk, therefore protecting human health, properties and infrastructure.</p>	<p>Tidal barrages should ideally not be placed within a designated site, however probably all estuaries where a tidal barrage could be incorporated within Ireland are designated Natura 2000 sites. This measure has the potential to have significant ecological impacts, particularly on migratory fish and other water dependent species.</p> <p>New tidal barriers could have potentially significant negative effects on water quality (including morphology) and erosion.</p> <p>Tidal barriers could impede fish passage and impact on upstream protected sites.</p>
<i>Coastal Flood walls</i>	<p>Hard coastal defences can deliver benefits by regulating water flow and reducing flood risk, therefore protecting human health, properties and infrastructure.</p>	<p>New hard coastal defences on undeveloped shoreline or tidal barriers could have potentially significant negative effects on water quality, coastal morphology and erosion.</p> <p>In areas of longshore drift, defences in one location can have implications for sediment distribution in other areas.</p> <p>Coastal defences may reduce access for recreational activities.</p> <p>There are potential negative visual effects on urban and coastal landscapes.</p> <p>There are potential negative visual effects on the seascape from artificial structures offshore or on the beach.</p> <p>Flood walls and embankments on coastal areas should not be on protected habitats and cannot alter coastal processes where a protected habitat requires inundation.</p>
<i>Rehabilitation of Existing Defences</i>	<p>Changes to existing defences could potentially deliver significant positive environmental effects, for example, by setting back defences from the shoreline or river.</p> <p>Sensitively rehabilitated defences may help to improve amenity, particularly if the shoreline is already modified.</p>	<p>Although existing defences have an established footprint and have an established hydraulic impact, rehabilitation of existing flood defence measures has the potential to result in impacts such as pollution, changes in sedimentation, disturbance, deterioration, damage and other impacts on species distribution arising from construction or repair activities. Regard must therefore be undertaken for the planning and implementation of such activities.</p>
<p><b>Relocation</b> Abandoning existing properties and relocating to existing or new properties outside the floodplain.</p>		
<i>Relocation</i>	<p>Reduced flood risk to human health and properties.</p>	<p>Potential for direct, significant, long term social impacts to those required to relocate. These impacts could however be positive or negative depending on the occupant's attitude to relocating. There is the potential for indirect, significant social impacts to residents through fragmentation of neighbourhoods. There is the potential for indirect, significant social impacts to relocated commercial properties</p>

		<p>if old customers do not frequent the new premises. There are unlikely to be any significant impacts on the environment from the relocation of properties/infrastructure away from flood risk areas, provided the new properties / infrastructure are not relocated to environmentally sensitive areas.</p>
<p><b>Flow Diversion</b> Diversion of Flow - Realignment of entire river, diversion channel out of river basin and/or bypass channel to return flow downstream. Overland Floodways - Using roads or linear floodways to convey flow to a determined discharge point.</p>		
<i>Diversion of Flow</i>	<p>There will be direct positive social impacts from diversion of flow through the reduction of flood risk and impacts to property and infrastructure.</p>	<p>Flow diversion includes realigning the entire river or creating by-pass channels. They are usually implemented in the immediate vicinity of the AFA and any impacts are likely to be localised. There will however be direct negative impacts on local existing habitats in the footprint of the diversion channel. Flow diversions have the potential to interfere with the hydrology of a river and its structure and function and thus may have implications for habitats where natural hydrological processes need to be maintained and/or restored and also in habitats where flooding is an important constituent element. Full diversion of a watercourse should not be proposed within a designated site, as is likely to impact upon the designation criteria. There should be limited impact from bypass channels if the normal flow in the original channel is maintained and the bypass channel is not created in a habitat that is sensitive to flooding. Diversion of flow may just transfer the flood risk to another location.</p>
<i>Overland Floodways</i>	<p>There will be direct positive social impacts from using overland floodways through the reduction of flood risk and impacts to property and infrastructure.</p>	<p>Overland floodways should not be proposed within designated sites where the designated habitat and / or species are vulnerable to flooding, as there is the potential for significant negative environmental impacts during a flood event. This measure may be further investigated within designated areas that require or are not sensitive to periodic inundation. Overland floodways may just transfer the flood risk to another location.</p>
<p><b>Other Works</b> Minor raising of existing defences / levels, infilling gaps in defences, site specific localised protection works, etc.</p>		
<i>Other Works</i>	Unknown	Unknown
<i>Site Specific Protection Works</i>	Unlikely to be significant positive impacts at a strategic level.	Unlikely to be significant negative impacts at a strategic level. However method is non-specific.
<p><b>Flood Forecasting</b> Monitoring rain and flows and alerting relevant recipients of flood risk likely to occur.</p>		
<i>Flood Forecasting</i>	Unlikely to be significant positive impacts at a strategic level, however will reduce flood risk to human health.	Unlikely to be significant negative impacts at a strategic level.
<p><b>Public Awareness</b></p>		

<b>Make public aware of risk and advice on measures to protect themselves and properties.</b>		
<i>Public Awareness</i>	Unlikely to be significant positive impacts at a strategic level, however will reduce flood risk to human health.	Unlikely to be significant negative impacts at a strategic level.
<b>Individual Property Protection</b> Flood proofing, flood gates, capping vents and / or resilience measures.		
<i>Individual Property Protection</i>	Property level protection may provide positive impacts to those provided with protective equipment by giving them more peace of mind. There will be positives for the public that can protect themselves from small flood events, reducing or even eliminating damages that would otherwise cause disturbance and inconvenience.	Unlikely to be significant negative impacts at a strategic level, provided property protection does not impact on protected structures or monuments and their setting.



## **APPENDIX B**

### **SCREENING OF EUROPEAN SITES WITH POTENTIAL TO BE IMPACTED BY THE SOUTH EASTERN CFRAM STUDY**

## APPENDIX B: SCREENING OF EUROPEAN SITES WITH POTENTIAL TO BE IMPACTED BY THE SOUTH EASTERN CFRAM STUDY

### UoM11 SCREENING TABLES

Name: Blackwater Bank SAC		Site Code: (IE002953)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Sandbanks which are slightly covered by sea water all the time [1110].	
Proximity to AFA(s) and Linkage	<p>The Blackwater Bank SAC consists of a series of offshore sandbanks running roughly parallel to the coastline of Co. Wexford. There are five AFAs with the potential to influence the SAC; two in UoM11 and three in UoM12.</p> <p><b>UoM11</b></p> <p>The AFAs in UoM11 with the potential to influence the SAC are: Blackwater (8.3km) and Courtown (10.1km). The Owenavorrhagh River, which passes through Courtown AFA, discharges into the Irish sea 14km north west of Blackwater Bank SAC. The Aughboy River, which also passes through Courtown AFA, discharges in to the Irish Sea 12.9km north west of the SAC.</p> <p>The River Blackwater, which passes through Blackwater AFA, discharges into the sea approximately 7.2km west of Blackwater Bank SAC. Having regard for the qualifying interests and the effects of distance and dilution between the two catchments and the European site, which are separated by open coastal waters, it is considered that the effects of distance are such that alterations to river flows or sedimentation from these rivers would not be perceptible at the European site and therefore there is no potential impact pathway between the implementation of FRM methods in the catchments of these AFAs and the qualifying interest of the European site.</p> <p>Courtown is also subject to coastal flood risk and therefore coastal FRM methods may also be used at the AFA. Sediment transport along this section of the coastline is predominantly from south to north and it thus considered unlikely that the use of coastal FRM methods at Courtown would influence the qualifying interest of the Blackwater Bank SAC, which is 10km south of the AFA.</p>	
Potential Impacts	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Blackwater Bank SAC and any of the AFAs in UoM11. Consequently the SAC has been removed from any further screening.</b>	

Name: Buckronev-Brittis Dunes and Fen SAC		Site Code: (IE000729)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Embryonic shifting dunes [2110], Humid dune slacks [2190], Alkaline fens [7230], Annual vegetation of drift lines [1210], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Atlantic decalcified fixed dunes ( <i>Calluno-Ulicetea</i> ) [2150], Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salix arenariae</i> ) [2170], Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] and Perennial vegetation of stony banks [1220].	
Proximity to AFA(s) and Linkage	<p>Buckronev - Brittis Dunes and Fen comprises two main sand dune systems, Brittis Bay and Buckronev Dunes, connected on the coast by the rocky headland of Mizen Head. The dunes have cut off the outflow of a small river at Mizen Head and a fen, Buckronev Fen, has developed. Buckronev-Brittis Dunes and Fen SAC is outside the South Eastern CFRAM Study area, but is located within 15km of UoM12 and therefore has the potential to be influenced by</p>	

	<p>the UoM11 FRMP. As such, it has been included in the screening.</p> <p>There are no AFAs within 15km of the SAC boundary; the nearest AFAs are Courtown (20.9km) and Gorey (18.8km). These AFAs are in a separate catchment to Buckroney-Brittas Dunes and Fen SAC and the nearest point of discharge is in excess of 22km from the SAC.</p> <p>Due to the separation distance, across coastal waters, no impacts on the qualifying interests of the Buckroney-Brittas Dunes and Fen SAC are predicted to occur from the implementation of FRM methods in the catchments of Courtown and Gorey AFAs, either from the alteration of flows within the affected watercourses, from alterations to the sediment regime where those watercourses discharge into the sea or from the implementation of coastal flood defences.</p>
Potential Impacts	<p><b>As there is no potential impact pathway between the qualifying interests of the Buckroney-Brittas Dunes and Fen SAC and any of the AFAs in UoM11 (or any other UoM in the study area), it has been concluded that the SAC will not be impacted by the South Eastern CFRAM Study. Consequently, the SAC has been removed from any further screening.</b></p>

Name: Cahore Marshes SPA		Site Code: (IE004143)
Qualifying Interest(s)	<p><b>Species of Special Conservation Interest:</b> Wigeon (<i>Anas penelope</i>) [A050], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Lapwing (<i>Vanellus vanellus</i>) [A142] and Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] and Wetland and Waterbirds [A999] habitat.</p>	
Proximity to AFA(s) and Linkage	<p>Cahore Marshes SPA comprises an area of polder grassland and some arable land interspersed by canals and drainage channels. It is located a few tens of metres inland and is not connected to the sea. There are three AFAs in UoM11 with the potential to influence Cahore Marshes SPA. They are: Blackwater (11.6km), Courtown (6.4km) and Gorey (12.9km).</p> <p>On reviewing the available hydraulic and biodiversity data, it can be seen that the AFAs of Blackwater and Gorey are in separate catchments to the Cahore Marshes SPA and have no hydraulic connectivity with it, nor any connectivity by means of a biodiversity corridor or stepping stone.</p> <p>Part of Courtown AFA is within the same coastal catchment as Cahore Marshes SPA, however Courtown is part of the Aughboy and Mangan Lower sub-basin catchments and Cahore Marshes is within the Cahore Canal sub-catchment. The three sub-basin catchments are hydraulically distinct with no connectivity between their watercourses, nor any connectivity by means of a biodiversity corridor or stepping stone.</p> <p>There is not considered to be any potential impact pathway between the catchment areas of Blackwater, Courtown or Gorey AFA and the qualifying interests of the Cahore Marshes SPA.</p>	
Potential Impacts	<p><b>As there is no potential impact pathway between the qualifying interests of Cahore Marshes SPA and any of the AFAs in UoM11 (or any other UoM in the study area), it has been concluded that the SPA will not be impacted by the South Eastern CFRAM Study. Consequently, the SPA has been removed from any further screening.</b></p>	

Name: Cahore Polders and Dunes SAC		Site Code: (IE000700)
Qualifying Interest(s)	<p><b>Annex I Habitats:</b> Annual vegetation of drift lines [1210], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] and Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130].</p>	
Proximity to AFA(s) and Linkage	<p>Cahore Polders and Dunes SAC comprises a sand dune system that extends along the coast for over 4 km, backed by areas of polder grassland, wetland and drainage channels. There are three AFAs in UoM11 with the potential to influence Cahore Polders and Dunes SAC. These are: Blackwater (11.6km), Courtown (6.4km) and Gorey (12.9km).</p>	



	<p>On reviewing the available data, it can be seen that the AFAs of Blackwater and Gorey are in separate river catchments to the Cahore Polders and Dunes SAC and have no hydraulic connectivity with it, nor any connectivity by means of a biodiversity corridor or stepping stone. Part of Courtown AFA is within the same coastal river waterbody as Cahore Polders and Dunes SAC, however Courtown is part of the Aughboy and Mangan Lower sub-basin catchments and Cahore Polders and Dunes SAC is within the Cahore Canal sub-catchment. The three sub-basin catchments are hydraulically distinct with no connectivity between their watercourses, nor any connectivity by means of a biodiversity corridor or stepping stone. There is therefore considered to be no potential impact pathway from FRM methods used to manage fluvial flood risk and the qualifying interests of Cahore Polders and Dunes SAC.</p> <p>However, Courtown is also subject to coastal flood risk and the introduction of new coastal FRM methods may influence the transport of sediment within the local coastal cell. Sediment transport is predominantly south to north, so the risk is low, however further assessment is recommended.</p> <p>There is not considered to be any potential impact pathway between the catchment areas of Blackwater or Gorey AFAs and the qualifying interests of the Cahore Polders and Dunes SAC. There exists the potential for coastal FRM methods used for Courtown AFA to influence the qualifying interests (particularly dune habitats) of the Cahore Polders and Dunes SAC; further assessment is required to determine the significance of these methods.</p>
<b>Potential Impacts</b>	<b>A potential impact pathway exists between certain qualifying interests at Cahore Polders and Dunes SAC and the use of certain FRM methods for Courtown AFA. Appropriate Assessment is required to assess the significance of these impacts.</b>

<b>Name: Carnsore Point SAC</b>		<b>Site Code: (IE002269)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Mudflats and sandflats not covered by seawater at low tide [1140] and Reefs [1170].	
<b>Proximity to AFA(s) and Linkage</b>	<p>Carnsore Point SAC comprises the area of sea and underlying bedrock and sediments off Carnsore Point. It includes rocky reefs that are strewn with boulders, cobbles and patches of sand, both on the shore and underwater. It is located in the nearshore area of UoM12 and UoM13. However, as it is located within the zone of influence of UoM11 it has the potential to be influenced by FRM methods used for AFAs in UoM11 and therefore has been included in the screening for the UoM11 FRMP.</p> <p>There are no AFAs from UoM11 within the zone of influence of Carnsore Point SAC; the nearest AFA is Blackwater, 21.0km away. Due to the separation distance between the AFA and the European site, across open coastal waters, there is considered to be no potential impact pathway between FRM methods used in the catchment of Blackwater AFA and the qualifying interests of this SAC, nor from any of the other AFAs in UoM11.</p>	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the implementation of FRM methods in the catchments of any of the AFAs in UoM11 and the qualifying interests of Carnsore Point SAC. Consequently this site has been removed from requiring any further screening for the UoM11 FRMP.</b>	

<b>Name: Kilmuckridge-Tinnaberna Sandhills SAC</b>		<b>Site Code: (IE001741)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120].	
<b>Proximity to AFA(s) and</b>	Kilmuckridge-Tinnaberna Sandhills SAC incorporates a fine-grained sandy beach up to 50m	

<b>Linkage</b>	<p>wide, backed by steep clay cliffs at the southern end and sand dunes at the northern end. The cliffs are up to 15m high, and are eroding in places. There are two AFAs in UoM11 with the potential to influence Kilmuckridge-Tinnaberna Sandhills SAC. These are: Blackwater (5.0km) and Courtown (12.3km).</p> <p>On reviewing the available hydraulic and biodiversity data, it can be seen that although Blackwater AFA and part of Courtown AFA are in the same coastal WFD catchment area as Kilmuckridge-Tinnaberna Sandhills SAC, Blackwater is in the Blackwater (Wexford) sub-catchment, Courtown is part of the Aughboy and Mangan Lower sub-basin catchments whilst Kilmuckridge-Tinnaberna Sandhills SAC is within the Killincooly Beg and Litter More sub-basin catchments. The various sub-basin catchments are hydraulically distinct with no connectivity between their watercourses, nor any connectivity by means of a biodiversity corridor or stepping stone.</p> <p>There is not considered to be any potential impact pathway between either Blackwater or Courtown AFAs and the qualifying interests of the Kilmuckridge-Tinnaberna Sandhills SAC.</p>
<b>Potential Impacts</b>	<p><b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM11 and the qualifying interests of Kilmuckridge-Tinnaberna Sandhills SAC. Consequently this site has been removed from requiring any further screening for the UoM11 FRMP.</b></p>

<b>Name: Kilpatrick Sandhills SAC</b> <span style="float: right;"><b>Site Code: (IE001742)</b></span>	
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Annual vegetation of drift lines [1210], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150].</p>
<b>Proximity to AFA(s) and Linkage</b>	<p>Kilpatrick Sandhills SAC is comprised of a mosaic of coastal habitats but primarily a mature sand dune system which extends along 2 km of coastline. It is outside the South Eastern CFRAM Study area, but is located within 15km of UoM11 and therefore has the potential to be influenced by the South Eastern CFRAM Study. As such, it has been included in the screening.</p> <p>There are two AFAs in UoM11 with the potential to influence Kilpatrick Sandhills SAC. These are: Courtown (8.3km) and Gorey (7.9km).</p> <p>On reviewing the available hydraulic and environmental data, it can be seen that Courtown and Gorey are in separate river catchments from Kilpatrick Sandhills and the two areas are not hydraulically connected.</p> <p>There is not considered to be any potential impact pathway between FRM methods at Gorey AFA and the qualifying interests of Kilpatrick Sandhills SAC; the Owenavorrigh River discharges into the sea almost 9km south of the European site. The effects of distance are such that alterations to river flows or sedimentation from the river would not be perceptible at the European site.</p> <p>Courtown is subject to coastal flood risk in addition to fluvial flood risk. It located along the coast approximately 8km south of the SAC. Further assessment is necessary to determine whether coastal protection methods such as hard defences may impact the qualifying interests, by causing alterations to sediment transport which may affect the supply of sand to the dunes.</p>
<b>Potential Impacts</b>	<p><b>A potential impact pathway exists between Kilpatrick Sandhills SAC and the coastal FRM methods that may be employed for Courtown AFA. Appropriate Assessment is required to assess the significance of these impacts.</b></p>

Name: Lady's Island Lake SAC		Site Code: (IE000704)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Coastal lagoons [1150], Perennial vegetation of stony banks [1220] and Reefs [1170].	
Proximity to AFA(s) and Linkage	<p>Lady's Island Lake SAC is comprised of a shallow, brackish coastal lagoon separated from the sea by a sand and shingle barrier. The site includes the intertidal reef of Carnsore Point, and the area of reef to the west of the point. It is located in UoM13, but as it is located within 15km of UoM11 it has the potential to be influenced by FRM methods used in UoM11. As such, it has been included in the screening.</p> <p>There are no AFA catchments in UoM11 with the potential to influence Lady's Island Lake SAC. The nearest, Blackwater, is c. 23km from the SAC, on the opposite side of Wexford Harbour and has no hydraulic connectivity with it.</p> <p>There is no potential impact pathway between FRM methods being used at any of the AFAs in UoM11 and Lady's Island Lake SAC.</p>	
Potential Impacts	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM11 and the qualifying interests of Lady's Island Lake SAC. Consequently this site has been removed from requiring any further screening for the UoM11 FRMP.</b>	

Name: Lady's Island Lake SPA		Site Code: (IE004009)
Qualifying Interest(s)	<b>Species of Special Conservation Interest:</b> Gadwall ( <i>Anas strepera</i> ) [A051], Black-headed Gull ( <i>Chroicocephalus ridibundus</i> ) [A179], Sandwich Tern ( <i>Sterna sandvicensis</i> ) [A191], Roseate Tern ( <i>Sterna dougallii</i> ) [A192], Common Tern ( <i>Sterna hirundo</i> ) [A193], Arctic Tern ( <i>Sterna paradisaea</i> ) [A194] and Wetland and Waterbirds [A999] habitat.	
Proximity to AFA(s) and Linkage	<p>Lady's Island Lake SPA, comprises a lagoon habitat which is regarded as an excellent example of a sedimentary lagoon with a sand/shingle barrier. It is by far the largest and best example of this type of lagoon in the country. It is located in UoM13, but as it is located within 15km of UoM11 it has the potential to be influenced by FRM methods used in UoM11. As such, it has been included in the screening.</p> <p>There are no AFA catchments in UoM11 with the potential to influence Lady's Island Lake SPA. The nearest, Blackwater, is c. 23km from the SPA, on the opposite side of Wexford Harbour and has no hydraulic connectivity with it.</p> <p>There is no potential impact pathway between FRM methods being used at any of the AFAs in UoM11 and Lady's Island Lake SPA.</p>	
Potential Impacts	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM11 and the qualifying interests of Lady's Island Lake SPA. Consequently this site has been removed from requiring any further screening for the UoM11 FRMP.</b>	

Name: Long Bank SAC		Site Code: (IE002161)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Sandbanks which are slightly covered by sea water all the time [1110].	
Proximity to AFA(s) and Linkage	<p>The Long Bank SAC incorporates Long Bank and Holdens Bed which are offshore sandbanks located several kilometres to the east of Rosslare and Wexford Harbour. There are four AFAs with the potential to influence the SAC; one in UoM11 and three in UoM12.</p> <p>Blackwater (9.4km) is the only AFA in UoM11 with the potential to influence the SAC. The</p>	

	mouth of the River Blackwater, which passes through Blackwater AFA, is approximately 8.2km northwest of Long Bank SAC. Having regard for the qualifying interests and the effects of distance and dilution between the catchment and the European site, which are separated by open coastal waters, it is considered that there is no potential impact pathway between this AFA and the qualifying interest of the European site.
Potential Impacts	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Long Bank SAC and any of the AFAs in UoM11. It has been concluded that the SAC will not be impacted on by any of the methods in the UoM11 FRMP. Consequently the SAC has been removed from any further screening.</b>

Name: Raven Point Nature Reserve SAC		Site Code: (1E000710)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salix arenariae</i> ) [2170], Annual vegetation of drift lines [1210], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Humid dune slacks [2190], Mudflats and sandflats not covered by seawater at low tide [1140] and Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330].	
Proximity to AFA(s) and Linkage	<p>The Raven Point Nature Reserve SAC incorporates a large sand dune system comprising a suite of coastal habitats which are listed on Annex I of the E.U. Habitats Directive. It straddles two Units of Management, UoM11 and UoM12.</p> <p>Only one AFA in UoM 11, Blackwater (6.3km), is within the area of influence of Raven Point Nature Reserve SAC. Blackwater AFA is in the same coastal WFD catchment as the SAC, however examination of the available hydraulic information demonstrates that it is in a separate sub-catchment and no hydraulic connectivity is present between the AFA sub-catchment and the SAC. The mouth of the River Blackwater is 5.8km north of the SAC boundary. Due to the separation distance, across coastal waters, no impacts from the implementation of FRM methods for Blackwater AFA are predicted to occur on the qualifying interests of the Raven Point Nature Reserve SAC, either from the alteration of flows within the affected watercourses or from alterations to the sediment regime where the River Blackwater discharges into the Irish Sea.</p>	
Potential Impacts	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Raven Point Nature Reserve SAC and any of the AFAs in UoM11. Consequently this site has been removed from requiring any further screening for the UoM11 FRMP.</b>	

Name: Screen Hills SAC		Site Code: (1E000708)
Qualifying Interest(s)	<b>Annex I Habitats:</b> European dry heaths [4030], Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> ) [3110].	
Proximity to AFA(s) and Linkage	<p>The Screen Hills SAC is characterised by a type of glacial landscape known as “kettle and kame”, a term which refers to kettlehole lakes found in hollows between small hills. The lakes, which are mostly small, mark the positions of former ice blocks in an acidic, sandy moraine. The SAC straddles two Units of Management, UoM11 and UoM12.</p> <p>Only one AFA in UoM 11, Blackwater (3.3km), has the potential to influence Screen Hills SAC. Blackwater AFA is partially in the same coastal WFD catchment as the SAC, however examination of the available hydraulic information demonstrates that it is in a separate sub-catchment and no hydraulic connectivity is present between the AFA sub-catchment and the SAC. In addition, although the Screen Hills pNHA covers a wider area than the SAC, there is no</p>	

	connectivity with the AFA catchment via a biodiversity corridor or stepping stone.
<b>Potential Impacts</b>	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Screen Hills SAC and the use of FRM at any of the AFAs in UoM11. Consequently this site has been removed from requiring any further screening for the UoM11 FRMP.</b>

<b>Name: Slaney River Valley SAC</b>		<b>Site Code: (IE000781)</b>
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260], Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0], Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles [91A0]</p> <p><b>Annex II Species:</b> <i>Lampetra fluviatilis</i> (River Lamprey) [1099], <i>Lampetra planeri</i> (Brook Lamprey) [1096], <i>Petromyzon marinus</i> (Sea Lamprey) [1095], <i>Salmo salar</i> (Salmon) [1106], <i>Margaritifera margaritifera</i> (Freshwater Pearl Muscle) [1029], <i>Lutra lutra</i> (Otter) [1355], <i>Phoca vitulina</i> (Common Seal) [1365], <i>Alosa fallax</i> (Twaite Shad) [1103].</p>	
<b>Proximity to AFA(s) and Linkage</b>	<p>This SAC comprises the freshwater stretches of the River Slaney as far as the Wicklow Mountains; a number of tributaries, the larger of which include the Bann, Boro, Glasha, Clody, Derry, Derreen, Douglas and Carrigower Rivers; the estuary at Ferrycarrig; and Wexford Harbour. There are three AFAs in UoM 11 with the potential to influence the Slaney River Valley SAC: Blackwater (9.1km), Courtown (7.1km) and Gorey (1.2km). These AFAs are in a different hydrometric area to the SAC and their catchments have no hydraulic connectivity with any of the catchments contributing to the River Slaney, nor any connectivity with the qualifying interests by virtue of a biodiversity corridor or stepping stone. There is not considered to be any potential impact pathway between FRM methods used for these AFAs and the qualifying interests of the SAC.</p>	
<b>Potential Impacts</b>	<p><b>There exists the potential for direct impacts on the qualifying interests of the Slaney River Valley SAC from FRM methods used in the catchments of Baltinglass, Bunclody, Enniscorthy (Fairfield/ Cherryorchard), North Slobs, South Slobs, Tullow (Tullowphelim), and Wexford AFAs. Appropriate Assessment is required to assess the significance of these impacts.</b></p>	

<b>Name: The Raven SPA</b>		<b>Site Code: (IE004019)</b>
<b>Qualifying Interest(s)</b>	<p><b>Species of Special Conservation Interest:</b> Red-throated Diver (<i>Gavia stellata</i>) [A001], Cormorant (<i>Phalacrocorax carbo</i>) [A017], Common Scoter (<i>Melanitta nigra</i>) [A065], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Sanderling (<i>Calidris alba</i>) [A144], Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] and Wetland and Waterbirds [A999] habitat.</p>	
<b>Proximity to AFA(s) and Linkage</b>	<p>The Raven SPA is dynamic sand dune system where sand flats, lagoons, driftlines and small dune slacks develop and are being continuously transformed by the activity of the sea and the wind. It straddles two Units of Management, UoM11 and UoM12.</p> <p>Only one AFA in UoM 11, Blackwater (1.2km), is within the zone of influence of the Raven SPA. The River Blackwater, which passes through the AFA, discharges into the Irish Sea at the boundary of the Raven SPA. There exists the potential for indirect impacts on the Raven SPA from the implementation of FRM methods in the Blackwater AFA catchment.</p>	
<b>Potential Impacts</b>	<p><b>There exists the potential for indirect impacts on the qualifying interests of the Raven SPA from the implementation of FRM methods in the Blackwater AFA catchment. Appropriate</b></p>	

	<b>Assessment is required to assess the significance of these impacts.</b>
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<b>Name: Wexford Harbour and Slobs SPA</b>		<b>Site Code: (IE004076)</b>
<b>Qualifying Interest(s)</b>	<p><b>Species of Special Conservation Interest:</b> Little Grebe (<i>Tachybaptus ruficollis</i>) [A004], Great Crested Grebe (<i>Podiceps cristatus</i>) [A005], Cormorant (<i>Phalacrocorax carbo</i>) [A017], Grey Heron (<i>Ardea cinerea</i>) [A028], Bewick's Swan (<i>Cygnus columbianus bewickii</i>) [A037], Whooper Swan (<i>Cygnus cygnus</i>) [A038], Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Wigeon (<i>Anas penelope</i>) [A050], Teal (<i>Anas crecca</i>) [A052], Mallard (<i>Anas platyrhynchos</i>) [A053], Pintail (<i>Anas acuta</i>) [A054], Scaup (<i>Aythya marila</i>) [A062], Goldeneye (<i>Bucephala clangula</i>) [A067], Red-breasted Merganser (<i>Mergus serrator</i>) [A069], Hen Harrier (<i>Circus cyaneus</i>) [A082], Coot (<i>Fulica atra</i>) [A125], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Knot (<i>Calidris canutus</i>) [A143], Sanderling (<i>Calidris alba</i>) [A144], Dunlin (<i>Calidris alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Curlew (<i>Numenius arquata</i>) [A160], Redshank (<i>Tringa totanus</i>) [A162], Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179], Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183], Little Tern (<i>Sterna albifrons</i>) [A195], Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395], Wetland and Waterbirds [A999].</p>	
<b>Proximity to AFA(s) and Linkage</b>	<p>Wexford Harbour is the lowermost part of the estuary of the River Slaney. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney. The site is of international importance for several species of waterbirds but also because it regularly supports well in excess of 20,000 waterbirds. Only one AFA in UoM 11, Blackwater (5.9km), is within the potential zone of influence of the Wexford Harbour and Slobs SPA. The River Blackwater, which passes through the AFA, discharges into the Irish Sea at the boundary of the Raven SPA. The Raven SPA immediately adjoins the Wexford Harbour and Slobs SPA and shares five qualifying interests (Cormorant, Grey Plover, Sanderling, Greenland White-fronted Goose and Wetland habitat) with it and therefore is included as a biodiversity stepping stone between the AFA river catchment and the Raven SPA. It is therefore considered that they may exist the potential for indirect impacts on the qualifying interests of Wexford Harbour and Slobs SPA from the implementation of FRM methods in the Blackwater AFA catchment and further examination of the significance of any impacts is recommended. .</p>	
<b>Potential Impacts</b>	<p><b>There exists the potential for indirect impacts on the qualifying interests of the Wexford Harbour and Slobs SPA from the implementation of FRM methods in the Blackwater AFA catchment. Appropriate Assessment is required to assess the significance of these impacts.</b></p>	

## UOM12 SCREENING TABLES

Name: Ballyteige Burrow SAC		Site Code: (IE0000696)
Qualifying Interest(s)	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Coastal lagoons [1150], Annual vegetation of drift lines [1210], Perennial vegetation of stony banks [1220], Salicornia and other annuals colonising mud and sand [1310], <i>Spartina swards (Spartinion maritimae)</i> [1320], Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330], Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410], Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) [1420], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150].</p>	
Proximity to AFA(s) and Linkage	<p>Ballyteige Burrow SAC is a long, narrow spit of coarse sand and gravel with an impressive sand dune system (Ballyteige Burrow) forms most of the seaward boundary of this site. Behind the spit lies a shallow, tidal sea inlet and estuary of the Duncormick River (The Cull). It located in UoM13, however, as it is located within the zone of influence of UoM12 it has the potential to be influenced by FRM methods used for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.</p> <p>There are two AFAs in UoM12 with the potential to influence Ballyteige Burrow SAC: South Slobs (10.4km) and Wexford (14.0km). South Slobs AFA is subject to coastal flood risk only whilst Wexford is subject to both fluvial and coastal flood risk. Ballyteige Burrow SAC is in a separate hydrometric area and therefore has no hydraulic connectivity with the river catchments of Wexford AFA, nor any connectivity with the qualifying interests by virtue of a biodiversity corridor or stepping stone. Approximately 35km of coastline separates the coastal AFAs from the SAC and therefore due to the effects of distance, across open coastal waters, there is not considered to be any potential impact pathway between FRM methods used in these AFAs and the qualifying interests of Ballyteige Burrow SAC.</p>	
Potential Impacts	<p><b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Ballyteige Burrow SAC. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b></p>	

Name: Ballyteige Burrow SPA		Site Code: (IE00004020)
Qualifying Interest(s)	<p><b>Species of Special Conservation Interest:</b> Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] and Wetland and Waterbirds [A999] habitats.</p>	
Proximity to AFA(s) and Linkage	<p>Ballyteige Burrow SPA has a range of coastal habitats, including various types of sand dunes, salt meadows, and intertidal sand and mud flats. Former estuarine areas adjacent to the site have been reclaimed as polders and are intensively managed for agriculture. It is a site of importance for wintering waterfowl. Although it is situated in UoM13, as it is located within the zone of influence of UoM12 it has the potential to be influenced by FRM methods used for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.</p> <p>There are two AFAs in UoM12 with the potential to influence Ballyteige Burrow SPA: South Slobs (11.1km) and Wexford (14.5km). South Slobs AFA is subject to coastal flood risk only whilst Wexford is subject to both fluvial and coastal flood risk. Ballyteige Burrow SPA is in a separate hydrometric area and therefore has no hydraulic connectivity with the river catchments of Wexford AFA, nor any connectivity with the qualifying interests by virtue of a biodiversity corridor or stepping stone. Approximately 35km of coastline separates the coastal AFAs from the SPA and therefore due to the effects of distance, across open coastal waters, there is not considered to be any potential impact pathway between FRM methods used in these AFAs and the qualifying interests of Ballyteige Burrow SPA.</p>	

Potential Impacts	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Ballyteige Burrow SPA. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>
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Name: Bannow Bay SAC		Site Code: (IE0000697)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Features of Interest, Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Perennial vegetation of stony banks [1220], <i>Salicornia</i> and other annuals colonising mud and sand [1310], Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritimae</i> ) [1330], Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410], Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> ) [1420], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] and Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130].	
Proximity to AFA(s) and Linkage	Bannow Bay SAC is located in UoM13. It encompasses Bannow Bay, a narrow mouthed estuary, and extends up the Corock and Owenduff Rivers. As it is located within the zone of influence of UoM12 it has the potential to be influenced by FRM methods used for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.  Bannow Bay SAC is in a separate hydrometric area from the AFAs in UoM12 and therefore has no hydraulic connectivity with the river catchments of the AFAs in UoM12, the nearest of which is Wexford (15.1km). Approximately 48km of coastline separates the coastal AFAs in UoM12 from the SAC. Due to the effects of distance, across open coastal waters, there is not considered to be any potential impact pathway between FRM methods used in any of the AFAs in UoM12 and the qualifying interests of Bannow Bay SAC.	
Potential Impacts	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Bannow Bay SAC. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	

Name: Bannow Bay SPA		Site Code: (IE00004033)
Qualifying Interest(s)	<b>Species of Special Conservation Interest:</b> Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> ) [A046], Shelduck ( <i>Tadorna tadorna</i> ) [A048], Pintail ( <i>Anas acuta</i> ) [A054], Oystercatcher ( <i>Haematopus ostralegus</i> ) [A130], Golden Plover ( <i>Pluvialis apricaria</i> ) [A140], Grey Plover ( <i>Pluvialis squatarola</i> ) [A141], Lapwing ( <i>Vanellus vanellus</i> ) [A142], Knot ( <i>Calidris canutus</i> ) [A143], Dunlin ( <i>Calidris alpina</i> ) [A149], Black-tailed Godwit ( <i>Limosa limosa</i> ) [A156], Bar-tailed Godwit ( <i>Limosa lapponica</i> ) [A157], Curlew ( <i>Numenius arquata</i> ) [A160], Redshank ( <i>Tringa totanus</i> ) [A162], Wetland and Waterbirds [A999].	
Proximity to AFA(s) and Linkage	Bannow Bay SPA is a large, sheltered estuarine system located in UoM13 with extensive areas of intertidal mud and sand flats exposed at low tide. As it is located within the zone of influence of UoM12 it has the potential to be influenced by FRM methods used for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.  Bannow Bay SPA is in a separate hydrometric area from the AFAs in UoM12 and therefore has no hydraulic connectivity with the river catchments of the AFAs in UoM12, the nearest of which is Wexford (18.3km). Approximately 48km of coastline separates the coastal AFAs in UoM12 from the SPA. Due to the effects of distance, across open coastal waters, there is not considered to be any potential impact pathway between FRM methods used in any of the AFAs in UoM12 and the qualifying interests of Bannow Bay SPA.	
Potential Impacts	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Bannow Bay SPA. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	



Name: Blackstairs Mountains SAC		Site Code: (IE00 000770)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] and European dry heaths [4030].	
Proximity to AFA(s) and Linkage	<p>The Blackstairs Mountains are located along the border of the Counties Wexford and Carlow, forming a mountain chain that runs in a north-east/south-west direction for approximately 22 km, and includes six peaks over 520 m. The range has a core of granite, and on the Carlow side, erosion has cut deeply into the dome exposing successive layers of granite, giving a steeply stepped slope. The Blackstairs Mountains SAC is the only example of moorland above 300 m in Counties Wexford and Carlow. It includes good examples of dry heath, a habitat listed on Annex I of the E.U. Habitats Directive.</p> <p>Blackstairs Mountains SAC straddles two Units of Management, UoM12 and UoM14. There are three AFAs in UoM12 with the potential to influence the Blackstairs Mountains SAC: Bunclody (3.6km), Enniscorthy (Fairfield/Cherryorchard) (11.4km) and Tullow (Tullowphelim) (14.4km).</p> <p>The Blackstairs Mountains SAC forms the upland catchment and source area for Bunclody AFA (via the River Clody) and Enniscorthy AFA (via the Urrin River) which are respectively 7km and 18km downstream of the SAC.</p> <p>The Preliminary Options Report for the Slaney Sub-Catchment SSA reported that although storage FRM methods were short-listed for consideration, the method was ultimately rejected in this stage of Optioneering, as storage would not be technically effective at sub-catchment scale. There is therefore considered to be no potential impact pathway between the implementation of FRM methods for Bunclody AFA and the qualifying interests of Blackstairs Mountains SAC.</p> <p>The Preliminary Options Report for UoM12 also ruled out storage FRM methods at the sub sub-catchment scale and therefore there is no potential for storage methods to be used for Enniscorthy AFA thus eliminating any potential impact pathway between FRM methods at Enniscorthy (Fairfield/Cherryorchard) and the qualifying interests of Blackstairs Mountains SAC.</p> <p>Tullow (Tullowphelim) AFA is upstream on the River Slaney and its catchment area has no hydraulic links with the Blackstairs Mountains SAC. There is no potential impact pathway between FRM methods used in the catchment of Tullow (Tullowphelim) AFA and the qualifying interests of Blackstairs Mountains SAC.</p>	
Potential Impacts	<b>There is not considered to be any potential impact pathway between the qualifying interests of Blackstairs Mountains SAC and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	

Name: Blackwater Bank SAC		Site Code: (IE002953)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Sandbanks which are slightly covered by sea water all the time [1110].	
Proximity to AFA(s) and Linkage	<p>The Blackwater Bank SAC consists of a series of offshore sandbanks running roughly parallel to the coastline of Co. Wexford. There are five AFAs with the potential to influence the SAC; two in UoM11 and three in UoM12.</p> <p>The AFAs in UoM12 with the potential to influence the SAC are: North Slobs (6.5km), South Slobs (8.6km) and Wexford (12.6km). The North Slobs and South Slobs AFAs are subject only to coastal flood risk while Wexford is subject to both fluvial and coastal flood risk.</p> <p>The introduction of new coastal FRM methods may influence the transport of sediment within the local coastal cell. If these methods are intended to be used in the FRMP, further assessment is recommended.</p>	
Potential Impacts	<b>A potential impact pathway exists between certain qualifying interest of Long Bank SAC and the use of certain FRM methods for North Slobs, South Slobs and Wexford AFAs.</b>	

	<b>Appropriate Assessment is required to assess the significance of these impacts.</b>
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<b>Name: Buckronev-Brittis Dunes and Fen SAC</b>		<b>Site Code: (IE000729)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Embryonic shifting dunes [2110], Humid dune slacks [2190], Alkaline fens [7230], Annual vegetation of drift lines [1210], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Atlantic decalcified fixed dunes ( <i>Calluno-Ulicetea</i> ) [2150], Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salix arenariae</i> ) [2170], Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) [1410] and Perennial vegetation of stony banks [1220].	
<b>Proximity to AFA(s) and Linkage</b>	Buckronev - Brittis Dunes and Fen comprises two main sand dune systems, Brittis Bay and Buckronev Dunes, connected on the coast by the rocky headland of Mizen Head. The dunes have cut off the outflow of a small river at Mizen Head and a fen, Buckronev Fen, has developed. Buckronev-Brittis Dunes and Fen SAC is outside the South Eastern CFRAM Study area, but is located within 15km of UoM12 and therefore has the potential to be influenced by the South Eastern CFRAM Study. As such, it has been included in the UoM12 FRMP screening. There are no AFAs from UoM 12 with potential to influence Buckronev-Brittis Dunes and Fen SAC; the nearest AFAs are Tullow and Baltinglass which are both over 40km away, in a separate hydrometric area with no hydraulic connectivity to the SAC, nor any connectivity by virtue of a biodiversity corridor or stepping stone.	
<b>Potential Impacts</b>	<b>There is not considered to be any potential impact pathway between the qualifying interests of Buckronev-Brittis Dunes and Fen SAC and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	

<b>Name: Cahore Marshes SPA</b>		<b>Site Code: (IE004143)</b>
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest:</b> Wigeon ( <i>Anas penelope</i> ) [A050], Golden Plover ( <i>Pluvialis apricaria</i> ) [A140], Lapwing ( <i>Vanellus vanellus</i> ) [A142] and Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> ) [A395] and Wetland and Waterbirds [A999] habitat.	
<b>Proximity to AFA(s) and Linkage</b>	Cahore Marshes SPA comprises an area of polder grassland and some arable land interspersed by canals and drainage channels. It is located a few tens of metres inland and is not connected to the sea. Cahore Marshes SPA is located in UoM11, however as it is located within the zone of influence of UoM12 it has the potential to be affected by FRM methods for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.  Cahore Marshes SPA is in a separate hydrometric area to the AFAs in UoM12 and therefore has no hydraulic connectivity with their river catchments, the nearest of which is Enniscorthy (Fairfield/Cherryorchard) (20.0km). The Slaney River discharges into Wexford Harbour approximately 30km south of the SPA.  Open coastline separates the coastal AFAs of UoM12 from the SPA, the nearest of which is North Slobs (16.8km). Due to the effects of distance, across open coastal waters, there is not considered to be any potential impact pathway between FRM methods used in coastal AFAs in UoM12 and the qualifying interests of Cahore Marshes SPA.	
<b>Potential Impacts</b>	<b>There is not considered to be any potential impact pathway between the qualifying interests of Cahore Marshes SPA and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	

<b>Name: Cahore Polders and Dunes SAC</b>		<b>Site Code: (IE000700)</b>
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<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Annual vegetation of drift lines [1210], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] and Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130].
<b>Proximity to AFA(s) and Linkage</b>	<p>Cahore Polders and Dunes SAC comprises a sand dune system that extends along the coast for over 4 km, backed by areas of polder grassland, wetland and drainage channels. Cahore Polders and Dunes SAC is located in UoM11 but as it is located within the zone of influence of UoM12 it has the potential to be affected by FRM methods for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.</p> <p>Cahore Polders and Dunes SAC is in a separate hydrometric area and therefore has no hydraulic connectivity with the river catchments of the AFAs in UoM12, the nearest of which is Enniscorthy (Fairfield/Cherryorchard) (c.20.0km). The Slaney River discharges into Wexford Harbour approximately 30km south of the SAC.</p> <p>Open coastline separates the coastal AFAs of UoM12 from the SAC, the nearest of which is North Slobs (16.8km). Due to the effects of distance, across open coastal waters, there is not considered to be any potential impact pathway between FRM methods used in coastal AFAs in UoM12 and the qualifying interests of Cahore Polders and Dunes SAC.</p>
<b>Potential Impacts</b>	<b>There is not considered to be any potential impact pathway between the qualifying interests of Cahore Polders and Dunes SAC and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>

<b>Name: Carnsore Point SAC</b>		<b>Site Code: (IE002269)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Mudflats and sandflats not covered by seawater at low tide [1140] and Reefs [1170].	
<b>Proximity to AFA(s) and Linkage</b>	<p>Carnsore Point SAC comprises the area of sea and underlying bedrock and sediments off Carnsore Point. It includes rocky reefs that are strewn with boulders, cobbles and patches of sand, both on the shore and underwater. Carnsore Point SAC is located in the nearshore area of UoM13 but extends a short distance into UoM12.</p> <p>There are three AFAs from UoM12 with the potential to influence Carnsore Point SAC. These are: North Slobs (10.8km), South Slobs (4.1km) and Wexford (10.2km) all three of which are subject to coastal flood risk. The river catchments of Wexford AFA have no hydraulic connectivity with Carnsore Point SAC and fluvial flows discharge into Wexford Harbour approximately 15km from Carnsore Point SAC. There is not considered to be any potential impact pathway for fluvial FRM methods used for Wexford AFA and the qualifying interests of Carnsore Point SAC.</p> <p>Carnsore Point SAC is located south of the North Slobs, South Slobs and Wexford AFAs. Sediment transport in this area is predominantly south to north and coastal FRM methods used for these AFAs would not be expected to have any impacts on the qualifying interests of the SAC as Wexford Harbour is not the predominant sand source for Carnsore Point.</p>	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Carnsore Point SAC. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	

<b>Name: Holdenstown Bog SAC</b>		<b>Site Code: (IE00001757)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Transition mires and quaking bogs [7140].	
<b>Proximity to AFA(s) and Linkage</b>	<p>Holdenstown Bog SAC is a small raised bog surrounded by transition mire which has developed in a kettle hole. There are two AFAs in UoM12 with the potential to impact the SAC: Baltinglass (1.7km) and Tullow (Tullowphelim) (10.9km).</p>	

	<p>Examination of the available hydraulic data shows that Holdenstown Bog SAC has no direct hydraulic connectivity with the river catchments of Baltinglass AFA; it is located adjacent to a tributary of the River Slaney which joins the Slaney approximately 3.75km south (downstream) of Baltinglass. There is also no connectivity between the AFA and the SAC via either a biodiversity corridor or stepping stone. It is therefore concluded that there is no potential impact pathway between FRM methods used for Baltinglass AFA and the qualifying interest of Holdenstown Bog SAC.</p> <p>Tullow (Tullowphelim) AFA is located on the river Slaney c.15km downstream of the joining point of the Holdenstown tributary mentioned above. There is no potential impact pathway between between FRM methods used for Tullow AFA and the qualifying interest of Holdenstown Bog SAC</p>
<b>Potential Impacts</b>	<b>There is no potential impact pathway between FRMs used for Baltinglass and Tullow (Tullowphelim) AFAs in UoM12 (or any other AFA in UoM12) and the qualifying interest of Holdenstown Bog SAC. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>

<b>Name: Kilmuckridge-Tinnaberna Sandhills SAC</b>		<b>Site Code: (IE001741)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120].	
<b>Proximity to AFA(s) and Linkage</b>	<p>Kilmuckridge-Tinnaberna Sandhills SAC incorporates a fine-grained sandy beach up to 50m wide, backed by steep clay cliffs at the southern end and sand dunes at the northern end. The cliffs are up to 15 m high, and are eroding in places.</p> <p>The North Slobs AFA, in UoM12, is 9.9km south of Kilmuckridge-Tinnaberna Sandhills SAC. The AFA is subject to coastal flood risk only and it is separated from the SAC by approximately 10km of coastal waters. In this area, sediment transport is predominantly from south to north. Further assessment is necessary to determine whether coastal protection methods such as hard defences may impact the qualifying interests of Kilmuckridge-Tinnaberna Sandhills SAC by causing alterations to sediment transport which may affect the supply of sand to the dunes. South Slobs and Wexford AFAs, which are also subject to coastal flood risk, are more than 20km from the SAC and are located wholly inside Wexford Harbour. It is unlikely that the use of coastal FRM methods at these AFAs would have the potential to influence Kilmuckridge-Tinnaberna Sandhills SAC.</p>	
<b>Potential Impacts</b>	<b>A potential impact pathway exists between Kilmuckridge-Tinnaberna Sandhills SAC and the coastal FRM methods that may be employed for North Slobs AFA. Appropriate Assessment is required to assess the significance of these impacts.</b>	

<b>Name: Kilpatrick Sandhills SAC</b>		<b>Site Code: (IE001742)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Annual vegetation of drift lines [1210], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and Atlantic decalcified fixed dunes ( <i>Calluno-Ulicetea</i> ) [2150].	
<b>Proximity to AFA(s) and Linkage</b>	<p>Kilpatrick Sandhills SAC is comprised of a mosaic of coastal habitats but primarily a mature sand dune system which extends along 2 km of coastline. Kilpatrick Sandhills SAC is outside the South Eastern CFRAM Study area, but is located within 15km of UoM12 and therefore has the potential to be influenced by the UoM12 FRMP. As such, it has been included in the screening.</p> <p>Kilpatrick Sandhills SAC is in a separate hydrometric area and therefore has no hydraulic connectivity with the river catchments of the AFAs in UoM12, the nearest of which is Bunclody (c.33km). The Slaney River discharges into Wexford Harbour &gt;50km south of the SAC. There is not considered to be any potential impact pathway between the fluvial FRM methods used for the AFAs in UoM12 and the qualifying interests of Kilpatrick Sandhills SAC.</p>	

	North Slobs AFA, which is subject to coastal flood risk, is located approximately 40km south of Kilpatrick Sandhills SAC and is separated from it by Cahore Point which forms the boundary of the local coastal sediment sub-cell. There is not considered to be any potential impact pathway between coastal FRM methods at North Slobs AFA and the qualifying interests of Kilpatrick Sandhills SAC.
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Kilpatrick Sandhills SAC. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>

<b>Name: Lady's Island Lake SAC</b>		<b>Site Code: (IE000704)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Coastal lagoons [1150], Perennial vegetation of stony banks [1220] and Reefs [1170].	
<b>Proximity to AFA(s) and Linkage</b>	<p>Lady's Island Lake SAC is comprised of a shallow, brackish coastal lagoon separated from the sea by a sand and shingle barrier. The site includes the intertidal reef of Carnsore Point, and the area of reef to the west of the point. Lady's Island Lake SAC is located in UoM13, but as it is located within 15km of UoM12 it has the potential to be influenced by FRM methods used in UoM12. As such, it has been included in the screening.</p> <p>There are three AFAs in UoM12 - North Slobs (13.8km), South Slobs (4.5km), Wexford (10.5km) which have the potential to influence Lady's Island Lake SAC. All three AFAs are subject to coastal flood risk (Wexford also having fluvial flood risk). The river catchments of Wexford AFA have no hydraulic connectivity with Lady's Island Lake SAC and fluvial flows discharge into Wexford Harbour approximately 29km from Lady's Island Lake SAC. There is not considered to be any potential impact pathway for fluvial FRM methods used for Wexford AFA and the qualifying interests of Lady's Island Lake SAC.</p> <p>Lady's Island Lake SAC is located south of the North Slobs, South Slobs and Wexford AFAs and is separated from them by Carnsore Point. There is no potential for coastal FRM methods at these AFAs to have an impact on the qualifying interests of the SAC.</p>	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Lady's Island Lake SAC. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	

<b>Name: Lady's Island Lake SPA</b>		<b>Site Code: (IE004009)</b>
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest:</b> Gadwall ( <i>Anas strepera</i> ) [A051], Black-headed Gull ( <i>Chroicocephalus ridibundus</i> ) [A179], Sandwich Tern ( <i>Sterna sandvicensis</i> ) [A191], Roseate Tern ( <i>Sterna dougallii</i> ) [A192], Common Tern ( <i>Sterna hirundo</i> ) [A193], Arctic Tern ( <i>Sterna paradisaea</i> ) [A194] and Wetland and Waterbirds [A999] habitat.	
<b>Proximity to AFA(s) and Linkage</b>	<p>Lady's Island Lake SPA, comprises a lagoon habitat which is regarded as an excellent example of a sedimentary lagoon with a sand/shingle barrier. It is by far the largest and best example of this type of lagoon in the country. Lady's Island Lake SPA is located in UoM13, but as it is located within 15km of UoM12 it has the potential to be influenced by FRM methods used in UoM12. As such, it has been included in the screening.</p> <p>There are three AFAs in UoM12 - North Slobs (13.9km), South Slobs (4.5km) and Wexford (10.5km) with the potential to influence Lady's Island Lake SPA. All three AFAs are subject to coastal flood risk (Wexford also having fluvial flood risk). The river catchments of Wexford AFA have no hydraulic connectivity with Lady's Island Lake SPA and fluvial flows discharge into Wexford Harbour some 29km from Lady's Island Lake SPA. There is not considered to be any potential impact pathway for fluvial FRM methods used for Wexford AFA and the qualifying interests of Lady's Island Lake SPA.</p> <p>Lady's Island Lake SPA is located south of the North Slobs, South Slobs and Wexford AFAs and</p>	

	is separated from them by Carnsore Point. There is no potential for coastal FRM methods at these AFAs to have an impact on the qualifying interests of the SAC.
Potential Impacts	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Lady's Island Lake SPA. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>

<b>Name: Long Bank SAC</b>		<b>Site Code: (IE002161)</b>
Qualifying Interest(s)	<b>Annex I Habitats:</b> Sandbanks which are slightly covered by sea water all the time [1110].	
Proximity to AFA(s) and Linkage	<p>The Long Bank SAC incorporates Long Bank and Holdens Bed which are offshore sandbanks located several kilometres to the east of Rosslare and Wexford Harbour. There are four AFAs with the potential to influence the SAC; one in UoM11 and three in UoM12.</p> <p><b>UoM12</b></p> <p>The AFAs in UoM12 with the potential to influence the SAC are: North Slobs (4.4km), South Slobs (4.9km) and Wexford (4.7km). The North Slobs and South Slobs AFAs are subject only to coastal flood risk while Wexford is subject to both fluvial and coastal flood risk.</p> <p>The introduction of new coastal FRM methods may influence the transport of sediment within the local coastal cell. If these methods are intended to be used in the FRMP, further assessment is recommended.</p>	
Potential Impacts	<b>A potential impact pathway exists between certain qualifying interest of Long Bank SAC and the use of certain FRM methods for North Slobs, South Slobs and Wexford AFAs. Appropriate Assessment is required to assess the significance of these impacts.</b>	

<b>Name: Poulaphouca Reservoir SPA</b>		<b>Site Code: (IE00004063)</b>
Qualifying Interest(s)	<b>Species of Special Conservation Interest:</b> Greylag Goose ( <i>Anser anser</i> ) [A043] and Lesser Black-backed Gull ( <i>Larus fuscus</i> ) [A183].	
Proximity to AFA(s) and Linkage	<p>Poulaphouca Reservoir covers an area of approximately 20 square kilometres and is the largest inland water body in the mid-east and south-east regions. It is of international importance for its Greylag Goose population, which is one of the largest in the country. The SPA is located outside the South Eastern CFRAM Study area, but as it is located within 15km of UoM12 it has the potential to be influenced by FRM methods used in UoM12. As such, it has been included in the screening.</p> <p>Poulaphouca Reservoir SPA is in a separate hydrometric area from the AFAs in UoM12 and therefore has no hydraulic connectivity with the river catchments of the AFAs in UoM12, the nearest of which is Baltinglass (c.18km). There is also no connectivity between the Poulaphouca Reservoir SPA and the AFAs in UoM12 by means of a biodiversity corridor or stepping stone.</p>	
Potential Impacts	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Poulaphouca Reservoir SPA and any of the AFAs in UoM12. It has been concluded that the SPA will not be impacted on by any of the methods in the South Eastern CFRAM Study. Consequently the SPA has been removed from any further screening.</b>	

<b>Name: Raven Point Nature Reserve SAC</b>		<b>Site Code: (IE000710)</b>
Qualifying Interest(s)	<b>Annex I Habitats:</b> Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Dunes with <i>Salix repens</i> ssp. <i>argentea</i> ( <i>Salix arenariae</i> ) [2170], Annual vegetation of drift lines [1210], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Humid dune slacks [2190], Mudflats and sandflats not covered	

	by seawater at low tide [1140] and Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330].
<b>Proximity to AFA(s) and Linkage</b>	<p>The Raven Point Nature Reserve SAC incorporates a large sand dune system comprising a suite of coastal habitats which are listed on Annex I of the E.U. Habitats Directive. The Raven Point Nature Reserve SAC straddles two Units of Management, UoM11 and UoM12.</p> <p>In UoM12 there are three AFAs with the potential to influence the Raven Point Nature Reserve SAC: North Slobs (0.0km), South Slobs (5.1km) and Wexford (4.7km). North Slobs and South Slobs AFAs are subject only to coastal flood risk, whilst Wexford has flood risk from both fluvial and coastal sources. Detailed conservation objectives have been drawn up for the habitats in the Raven Point Nature Reserve SAC which include: “<i>maintain the natural circulation of sediment and organic matter, without any physical obstructions</i>”. It is also noted that “<i>harbour construction works at Wexford and Rosslare have interrupted the natural flow of sediment along the coast</i>” and “<i>physical barriers can lead to fossilisation or over-stabilisation of dunes, as well as beach starvation resulting in increased rates of erosion.</i>” There exists the potential for adverse impacts to the Raven Point Nature Reserve SAC from the implementation of FRM methods at Wexford, North Slobs and South Slobs AFAs, in particular from the use of hard defences.</p>
<b>Potential Impacts</b>	<b>A potential impact pathway exists between certain qualifying interest of Raven Point Nature Reserve SAC and the use of certain FRM methods for North Slobs, South Slobs and Wexford AFAs. Appropriate Assessment is required to assess the significance of these impacts.</b>

<b>Name: Red Bog Kildare SAC</b>		<b>Site Code: (IE000397)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitat:</b> Transition mires and quaking bogs [7140].	
<b>Proximity to AFA(s) and Linkage</b>	<p>Red Bog Kildare SAC is a wetland complex of lake, fen and bog situated in a hollow between ridges of glacially-deposited material. It is outside the South Eastern CFRAM Study area, but is located within 15km of UoM12 and therefore has the potential to be influenced by UoM12 FRMP. As such, it has been included in the UoM12 FRMP screening.</p> <p>Red Bog Kildare SAC is in a separate hydrometric area from the AFAs in UoM12 and therefore has no direct hydraulic connectivity with the river catchments of the AFAs in UoM12, the nearest of which is Baltinglass (c.30km). There is not considered to be any potential impact pathway between FRM methods used for these AFAs and the qualifying interest of the SAC.</p>	
<b>Potential Impacts</b>	<b>As there is no potential impact pathway between the qualifying interests of the Red Bog Kildare SAC and any of the AFAs/HPWs in UoM12, it has been concluded that the SAC will not be impacted by any of the FRM methods proposed in the South Eastern CFRAM Study. Consequently the SAC has been removed from any further screening.</b>	

<b>Name: River Barrow And River Nore SAC</b>		<b>Site Code: (IE00002162)</b>
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Salicornia and other annuals colonising mud and sand [1310], Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330], Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410], Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260], European dry heaths [4030], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430], Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220], Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] and Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0].</p> <p><b>Annex II Species:</b> <i>Vertigo moulinsiana</i> (Desmoulin's Whorl Snail) [1016], <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029], <i>Austroptamobius pallipes</i> (White-clawed Crayfish) [1092], <i>Petromyzon marinus</i> (Sea Lamprey) [1095], <i>Lampetra planeri</i> (Brook Lamprey) [1096], <i>Lampetra fluviatilis</i> (River Lamprey) [1099], <i>Alosa fallax fallax</i> (Twite Shad) [1103], <i>Salmo salar</i> (Salmon) [1106], <i>Lutra lutra</i> (Otter) [1355], <i>Trichomanes speciosum</i></p>	

	(Killarney Fern) [1421] and <i>Margaritifera durrovensis</i> (Nore Pearl Mussel) [1990].
<b>Proximity to AFA(s) and Linkage</b>	<p>The River Barrow And River Nore SAC covers an extensive area as it consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The River Barrow And River Nore SAC covers an extensive area as it consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Freshwater Pearl Mussel, which is limited to a 10 km stretch of the Nore, add further interest to this site.</p> <p>There are four AFAs in UoM12 which have the potential to influence the River Barrow And River Nore SAC: Baltinglass (6.4km), Bunclody (9.9km), Enniscorthy (Fairfield/Cherryorchard) (13.9km) and Tullow (Tullowphelim) (11.9km).</p> <p>The River Barrow And River Nore SAC extends across two separate hydrometric areas that are distinct from UoM12 and have no connectivity with it. There is therefore no direct hydraulic connectivity between the River Barrow And River Nore SAC and the river catchments of the AFAs in UoM12. There is not considered to be any potential impact pathway between FRM methods used for these AFAs and the qualifying interests of the SAC.</p>
<b>Potential Impacts</b>	<b>As there is no potential impact pathway between the qualifying interests of the River Barrow And River Nore SAC and any of the AFAs in UoM12, it has been concluded that the SAC will not be impacted by any of the FRM methods proposed in the UoM12 FRMP. Consequently the SAC has been removed from any further screening.</b>

<b>Name: River Nore SPA</b>		<b>Site Code: (IE00004233)</b>
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest: Kingfisher (<i>Alcedo atthis</i>) [A229].</b>	
<b>Proximity to AFA(s) and Linkage</b>	<p>The River Nore SPA is a long, linear site that includes sections of a number of rivers including the River Nore, the Delour River, the Erkina River, the River Goul and the Kings River. The site includes the river channel and marginal vegetation. The River Nore SPA is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.</p> <p>The River Nore SPA is located in UoM15. However, as it is located within the zone of influence of UoM12 it has the potential to be influenced by FRM methods used for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.</p> <p>The River Nore SPA is in a separate hydrometric area which is distinct from UoM12 and has no connectivity with it. There is therefore no potential hydraulic connectivity between the River Nore SPA and the river catchments of the AFAs in UoM12, the nearest of which is Enniscorthy (Fairfield/Cherryorchard) c.30km away. There is not considered to be any potential impact pathway between FRM methods used for any of the AFAs in UoM12 and the qualifying interests of the SPA.</p>	
<b>Potential Impacts</b>	<b>As there is no potential impact pathway between the qualifying interests of the River Nore SPA and any of the AFAs in UoM12, it has been concluded that the SPA will not be impacted by any of the FRM methods proposed in the UoM12 FRMP. Consequently the SPA has been removed from any further screening.</b>	

<b>Name: Saltee Islands SAC</b>		<b>Site Code: (IE00000707)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats: Mudflats and sandflats not covered by seawater at low tide [1140], Large</b>	



	shallow inlets and bays [1160], Reefs [1170], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] and Submerged or partially submerged sea caves [8330]. <b>Annex II species:</b> <i>Halichoerus grypus</i> (Grey Seal) [1364].
<b>Proximity to AFA(s) and Linkage</b>	Saltee Islands SAC comprises the Saltees Islands and a large area of the surrounding seas. There are two islands, Great Saltee and Little Saltee, and a constellation of islets and rocks. As a group, they constitute a broken reef that protrudes from a seabed of sand and shell. The SAC is situated in UoM13 but, as it is located within the zone of influence of UoM12 it has the potential to be influenced by FRM methods used for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.  The closest AFAs to Saltee Islands SAC in UoM12 are South Slobs (8.2km) and Wexford (13.1km) which are in a separate hydrometric area and therefore have no fluvial hydraulic connectivity with the SAC and in coastal terms are separated from it by several kilometres of open water and Carnsore Point. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway from the use of coastal FRM methods at South Slobs or Wexford AFA on the qualifying interests of Saltee Islands SAC.
<b>Potential Impacts</b>	<b>As there is no potential impact pathway between the qualifying interests of the Saltee Islands SAC and any of the AFAs in UoM12, it has been concluded that the SAC will not be impacted by any of the FRM methods proposed in the UoM12 FRMP. Consequently the SAC has been removed from any further screening.</b>

<b>Name: Saltee Islands SPA</b>		<b>Site Code: (IE0004002)</b>
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest:</b> Fulmar ( <i>Fulmarus glacialis</i> ) [A009], Gannet ( <i>Morus bassanus</i> ) [A016], Cormorant ( <i>Phalacrocorax carbo</i> ) [A017], Shag ( <i>Phalacrocorax aristotelis</i> ) [A018], Lesser Black-backed Gull ( <i>Larus fuscus</i> ) [A183], Herring Gull ( <i>Larus argentatus</i> ) [A184], Kittiwake ( <i>Rissa tridactyla</i> ) [A188], Guillemot ( <i>Uria aalge</i> ) [A199], Razorbill ( <i>Alca torda</i> ) [A200], Puffin ( <i>Fratercula arctica</i> ) [A204].	
<b>Proximity to AFA(s) and Linkage</b>	Saltee Islands SPA comprises the two islands, Great Saltee and Little Saltee, situated some 4-5km off the south Wexford coast. The Saltee Islands are internationally important for holding an assemblage of over 20,000 breeding seabirds. Saltee Islands SPA comprises the two islands, Great Saltee and Little Saltee, situated some 4-5km off the south Wexford coast. The Saltee Islands are internationally important for holding an assemblage of over 20,000 breeding seabirds. Saltee Islands SPA is located in UoM13. However, as it is located within the zone of influence of UoM12 it has the potential to be influenced by FRM methods used for AFAs in UoM12 and therefore is being screened for the UoM12 FRMP.  The closest AFA to Saltee Islands SPA in UoM12 is South Slobs (14.2km) which is separated from the SPA by several kilometres of open coastline. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway from the use of coastal FRM methods at South Slobs AFA on the qualifying interests of Saltee Islands SPA.	
<b>Potential Impacts</b>	<b>As there is no potential impact pathway between the qualifying interests of the Saltee Islands SPA and any of the AFAs in UoM12, it has been concluded that the SPA will not be impacted by any of the FRM methods proposed in the UoM12 FRMP. Consequently the SPA has been removed from any further screening.</b>	

<b>Name: Screen Hills SAC</b>		<b>Site Code: (IE000708)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> European dry heaths [4030], Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflora</i> ) [3110].	
<b>Proximity to AFA(s) and Linkage</b>	The Screen Hills SAC is characterised by a type of glacial landscape known as “kettle and kame”, a term which refers to kettlehole lakes found in hollows between small hills. The lakes, which are mostly small, mark the positions of former ice blocks in an acidic, sandy moraine. The Screen Hills SAC straddles two Units of Management, UoM11 and UoM12.	

	<p>In UoM12 there are four AFAs with the potential to influence the Screen Hills SAC: Enniscorthy (Fairfield/Cherryorchard) (12.1km), North Slobs (0.9km), South Slobs (10.0km) and Wexford (7.2km).</p> <p>North Slobs and South Slobs AFAs are subject only to coastal flood risk, whilst Wexford has flood risk from both fluvial and coastal sources. Enniscorthy is subject only to fluvial flood risk.</p> <p>Enniscorthy (Fairfield/Cherryorchard), South Slobs and Wexford are located in separate river catchments to Screen Hills SAC and have no hydraulic connectivity with the site, nor any connectivity by virtue of a biodiversity corridor or stepping stone. There is not considered to be any potential impact pathway between the catchments of these AFAs and the qualifying interests of the SAC.</p> <p>North Slobs AFA is located within the same coastal river WFD waterbody as Screen Hills SAC; however as the only FRM methods under consideration in this AFA are for coastal protection, there is no potential impact pathway between these FRM methods and the qualifying interests of the SAC.</p>
<b>Potential Impacts</b>	<p><b>It is concluded that there is no potential impact pathway between the qualifying interests of the Screen Hills SAC and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b></p>

Name: Slaney River Valley SAC		Site Code: (IE000781)
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260], Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0], Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles [91A0].</p> <p><b>Annex II Species:</b> <i>Lampetra fluviatilis</i> (River Lamprey) [1099], <i>Lampetra planeri</i> (Brook Lamprey) [1096], <i>Petromyzon marinus</i> (Sea Lamprey) [1095], <i>Salmo salar</i> (Salmon) [1106], <i>Margaritifera margaritifera</i> (Freshwater Pearl Muscle) [1029], <i>Lutra lutra</i> (Otter) [1355], <i>Phoca vitulina</i> (Common Seal) [1365], <i>Alosa fallax</i> (Twaite Shad) [1103].</p>	
<b>Proximity to AFA(s) and Linkage</b>	<p>This SAC comprises the freshwater stretches of the River Slaney as far as the Wicklow Mountains and a number of tributaries, in addition to the estuary at Ferrycarrig and Wexford Harbour. The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as important numbers of wintering wildfowl including some species listed on Annex I of the E.U. Birds Directive. The presence of wet and broadleaved woodlands increases the overall habitat diversity and the occurrence of a number of Red Data Book plant and animal species adds further importance to the site. Overall it is of considerable conservation significance.</p> <p>. There are seven AFAs in UoM12 with the potential to influence the Slaney River Valley SAC: Baltinglass (0.0km), Bunclody (0.0km), Enniscorthy (Fairfield/Cherryorchard) (0.0km), North Slobs (0.0km), South Slobs (0.0km), Tullow (Tullowphelim) (0.0km) and Wexford (0.0km). All of these AFAs have boundaries within the SAC area and are directly hydraulically linked to the SAC. There exists the potential for direct impacts on the Slaney River Valley SAC from the implementation of FRM methods in the catchment areas of any of these AFAs.</p>	
<b>Potential Impacts</b>	<p><b>There exists the potential for direct impacts on the qualifying interests of the Slaney River Valley SAC from FRM methods used in the catchments of Baltinglass, Bunclody, Enniscorthy (Fairfield/ Cherryorchard), North Slobs, South Slobs, Tullow (Tullowphelim), and Wexford AFAs. Appropriate Assessment is required to assess the significance of these impacts.</b></p>	

Name: Tacumshin Lake SAC		Site Code: (IE0000709)
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Coastal lagoons [1150], Annual vegetation of drift lines [1210], Perennial vegetation of stony banks [1220], Embryonic shifting dunes [2110] and Shifting dunes along</p>	

	the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120].
<b>Proximity to AFA(s) and Linkage</b>	<p>Tacumshin Lake is a shallow coastal lagoon (formerly a shallow sea bay) which over time has been separated from the sea by a gravel/sand spit that has extended across the mouth of the bay from east to west, due to long-shore drift. Tacumshin Lake SAC is located in UoM13, but as it is located within 15km of UoM12 it has the potential to be influenced by FRM methods used in UoM12. As such, it has been included in the UoM12 FRMP screening.</p> <p>There are three AFAs in UoM12 - North Slobs (16.0km), South Slobs (4.9km) and Wexford (9.8km) which have the potential to influence Tacumshin Lake SAC. All three AFAs are subject to coastal flood risk (Wexford also having fluvial flood risk). The river catchments of Wexford AFA have no hydraulic connectivity with Tacumshin Lake SAC and fluvial flows discharge into Wexford Harbour approximately 28km from Tacumshin Lake SAC. There is not considered to be any potential impact pathway for fluvial FRM methods used for Wexford AFA and the qualifying interests of Tacumshin Lake SAC.</p> <p>Tacumshin Lake SAC is located south of the North Slobs, South Slobs and Wexford AFAs and is separated from them by Carnsore Point. There is no potential for coastal FRM methods used for these AFAs to have an impact on the qualifying interests of the SAC.</p>
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Tacumshin Lake SAC. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>

<b>Name: Tacumshin Lake SPA</b>		<b>Site Code: (IE00004092)</b>
<b>Qualifying Interest(s)</b>	<p><b>Species of Special Conservation Interest:</b> Little Grebe (<i>Tachybaptus ruficollis</i>) [A004], Bewick's Swan (<i>Cygnus columbianus bewickii</i>) [A037], Whooper Swan (<i>Cygnus cygnus</i>) [A038], Wigeon (<i>Anas penelope</i>) [A050], Gadwall (<i>Anas strepera</i>) [A051], Teal (<i>Anas crecca</i>) [A052], Pintail (<i>Anas acuta</i>) [A054], Shoveler (<i>Anas clypeata</i>) [A056], Tufted Duck (<i>Aythya fuligula</i>) [A061], Coot (<i>Fulica atra</i>) [A125], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Black-tailed Godwit (<i>Limosa limosa</i>) [A156] and Wetland and Waterbirds [A999].</p>	
<b>Proximity to AFA(s) and Linkage</b>	<p>Tacumshin Lake is a shallow coastal lagoon situated on the south Co. Wexford coast. The waterfowl population of the lagoon is exceptionally diverse and the area supports large numbers of birds through the whole year, which is unusual among Irish wetlands. Tacumshin SPA is located in UoM13, but as it is located within 15km of UoM12 it has the potential to be influenced by FRM methods used in UoM12. As such, it has been included in the screening.</p> <p>There are three AFAs in UoM12 - North Slobs (13.9km), South Slobs (4.5km) and Wexford (10.5km) with the potential to influence Tacumshin SPA. All three AFAs are subject to coastal flood risk (Wexford also having fluvial flood risk). The river catchments of Wexford AFA have no hydraulic connectivity with Tacumshin SPA and fluvial flows discharge into Wexford Harbour some 29km from Tacumshin SPA. There is not considered to be any potential impact pathway for fluvial FRM methods used for Wexford AFA and the qualifying interests of Tacumshin SPA.</p> <p>Tacumshin SPA is located south of the North Slobs, South Slobs and Wexford AFAs and is separated from them by Carnsore Point. There is no potential for coastal FRM methods at these AFAs to have an impact on the qualifying interests of the SPA.</p>	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the FRM methods proposed in the catchments of any of the AFAs in UoM12 and the qualifying interests of Tacumshin SPA. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>	

<b>Name: The Raven SPA</b>		<b>Site Code: (IE004019)</b>
<b>Qualifying Interest(s)</b>	<p><b>Species of Special Conservation Interest:</b> Red-throated Diver (<i>Gavia stellata</i>) [A001],</p>	

	Cormorant ( <i>Phalacrocorax carbo</i> ) [A017], Common Scoter ( <i>Melanitta nigra</i> ) [A065], Grey Plover ( <i>Pluvialis squatarola</i> ) [A141], Sanderling ( <i>Calidris alba</i> ) [A144], Greenland White-fronted Goose ( <i>Anser albifrons flavirostris</i> ) [A395], Wetland and Waterbirds [A999].
<b>Proximity to AFA(s) and Linkage</b>	<p>The Raven SPA is dynamic sand dune system where sand flats, lagoons, driftlines and small dune slacks develop and are being continuously transformed by the activity of the sea and the wind. It straddles two Units of Management, UoM11 and UoM12.</p> <p>In UoM12 there are four AFAs with the potential to influence the Raven SPA: Enniscorthy (Fairfield/Cherryorchard) (14.6km), North Slobs (0.0km), South Slobs (2.2km) and Wexford (4.1km).</p> <p>North Slobs and South Slobs AFAs are subject only to coastal flood risk, whilst Wexford has flood risk from both fluvial and coastal sources. Detailed conservation objectives have been drawn up for the species and wetland habitat in the Raven SPA which include: <i>“The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 4,207ha, other than that due to natural patterns of variation”</i></p> <p>There exists the potential for adverse impacts to the Raven SPA from the implementation of FRM methods at Wexford, North Slobs and South Slobs AFAs if these result in significant changes to natural coastal processes (e.g. sedimentation or erosion rates) in the Slaney Estuary and its environs.</p> <p>Enniscorthy (Fairfield/Cherryorchard) AFA is on the River Slaney c. 18km upstream from its confluence with Wexford Harbour, where it encounters the Wexford Harbour and Slobs SPA. The Wexford Harbour and Slobs SPA immediately adjoins the Raven SPA and shares five qualifying interests (Cormorant, Grey Plover, Sanderling, Greenland White-fronted Goose and Wetland habitat) with it and therefore is included as a biodiversity stepping stone between the AFA river catchment and the Raven SPA. It is unlikely, but not impossible that the implementation of FRM methods at Enniscorthy (Fairfield/Cherryorchard) AFA might influence the Wexford Harbour and Slobs SPA and thus also the qualifying interests from the Raven SPA which may share the use of this area. Further investigation into the potential significance applying FRM methods in the Enniscorthy (Fairfield/Cherryorchard) AFA catchment is recommended.</p>
<b>Potential Impacts</b>	<p><b>There exists the potential for indirect impacts on the qualifying interests of the Raven SPA from the implementation of FRM methods in the Blackwater AFA catchment. Appropriate Assessment is required to assess the significance of these impacts.</b></p> <p><b>There exists the potential for direct impacts on the qualifying interests of the Raven SPA from the use of fluvial and coastal FRM methods in Wexford AFA’s catchment area and from coastal FRM methods at the North Slobs and South Slobs. There exists the potential for indirect impacts on the qualifying interests of the Raven SPA from the implementation of FRM methods in the Enniscorthy (Fairfield/Cherryorchard) AFA catchment. Appropriate Assessment is required to assess the significance of these impacts.</b></p>

<b>Name: Vale Of Clara (Rathdrum Wood) SAC</b>		<b>Site Code: (IE0000733)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats: Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0].</b>	
<b>Proximity to AFA(s) and Linkage</b>	<p>The Vale of Clara is a remnant of the once extensive forests of east Wicklow, which may have occupied this site since the end of the last Ice Age. The woods in the Vale of Clara are a mosaic of relatively pure oak woodland (Sessile Oak, <i>Quercus petraea</i>), mixed woodland and commercial plantations. The Vale Of Clara (Rathdrum Wood) SAC is outside the South Eastern CFRAM Study area, but is located within 15km of UoM12 and therefore has the potential to be influenced by the South Eastern CFRAM Study. As such, it has been included in the UoM12 FRMP screening.</p> <p>There are no AFAs from UoM 12 with potential to influence Vale Of Clara (Rathdrum Wood) SAC; the nearest AFA is Baltinglass which is over 29km away, in a separate hydrometric area with no hydraulic connectivity to the SAC, nor any connectivity by virtue of a biodiversity corridor or stepping stone.</p>	
<b>Potential Impacts</b>	<b>It is concluded that there is no potential impact pathway between the qualifying interests of</b>	

	<b>Vale Of Clara (Rathdrum Wood) SAC and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP.</b>
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<b>Name: Wexford Harbour and Slobs SPA</b>		<b>Site Code: (IE004076)</b>
<b>Qualifying Interest(s)</b>	<p><b>Species of Special Conservation Interest:</b> Little Grebe (<i>Tachybaptus ruficollis</i>) [A004], Great Crested Grebe (<i>Podiceps cristatus</i>) [A005], Cormorant (<i>Phalacrocorax carbo</i>) [A017], Grey Heron (<i>Ardea cinerea</i>) [A028], Bewick's Swan (<i>Cygnus columbianus bewickii</i>) [A037], Whooper Swan (<i>Cygnus cygnus</i>) [A038], Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Wigeon (<i>Anas penelope</i>) [A050], Teal (<i>Anas crecca</i>) [A052], Mallard (<i>Anas platyrhynchos</i>) [A053], Pintail (<i>Anas acuta</i>) [A054], Scaup (<i>Aythya marila</i>) [A062], Goldeneye (<i>Bucephala clangula</i>) [A067], Red-breasted Merganser (<i>Mergus serrator</i>) [A069], Hen Harrier (<i>Circus cyaneus</i>) [A082], Coot (<i>Fulica atra</i>) [A125], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Knot (<i>Calidris canutus</i>) [A143], Sanderling (<i>Calidris alba</i>) [A144], Dunlin (<i>Calidris alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Curlew (<i>Numenius arquata</i>) [A160], Redshank (<i>Tringa totanus</i>) [A162], Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179], Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183], Little Tern (<i>Sterna albifrons</i>) [A195], Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395], Wetland and Waterbirds [A999].</p>	
<b>Proximity to AFA(s) and Linkage</b>	<p>Wexford Harbour is the lowermost part of the estuary of the River Slaney. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney. The site is of international importance for several species of waterbirds but also because it regularly supports well in excess of 20,000 waterbirds. In UoM12 there are four AFAs with the potential to influence the Wexford Harbour and Slobs SPA: Enniscorthy (Fairfield/Cherryorchard) (0.0km), North Slobs (0.0km), South Slobs (0.0km) and Wexford (0.0km). All of these AFAs have boundaries adjoining or are within the SPA area and all are directly hydraulically linked to the SPA. There exists the potential for direct impacts on the qualifying interests of the Wexford Harbour and Slobs SPA from the implementation of FRM methods in the catchment areas of any of these AFAs.</p>	
<b>Potential Impacts</b>	<p><b>There exists the potential for direct impacts on the qualifying interests of the Wexford Harbour and Slobs SPA from the implementation of FRM methods in Wexford AFA's catchment and from coastal FRM methods at the North Slobs and South Slobs.</b></p> <p><b>There exists the potential for indirect impacts on the qualifying interests of the Wexford Harbour and Slobs SPA from the implementation of FRM methods in the Enniscorthy (Fairfield/ Cherryorchard) AFA catchment. Appropriate Assessment is required to assess the significance of these impacts.</b></p>	

<b>Name: Wicklow Mountains SAC</b>		<b>Site Code: (IE0002122)</b>
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflora</i> and/or <i>Isoeto-Nanojuncetea</i> [3130], Natural dystrophic lakes and ponds [3160], Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010], European dry heaths [4030], Alpine and Boreal heaths [4060], Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) [6230], Blanket bogs (* priority habitat if active bog) [7130], Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) [8110], Calcareous rocky slopes with chasmophytic vegetation [8210], Siliceous rocky slopes with chasmophytic vegetation [8220] and Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0].</p> <p><b>Annex II Species:</b> <i>Lutra lutra</i> (Otter) [1355].</p>	
<b>Proximity to AFA(s) and</b>	<p>Wicklow Mountains SAC is a large SAC, spread over a number of hydrometric areas including UoM12. Two AFAs in UoM12 have hydraulic connectivity with Wicklow Mountains SAC,</p>	

UoM12 SCREENING TABLES

<b>Linkage</b>	Baltinglass (10.3 linear km, 19.5km via the Slaney and Little Slaney Rivers) and Tullow (Tullowphelim) (20.0 linear km, 33km via the Derreen River). The Preliminary Options Report for the Slaney Sub-Catchment SSA reported that although storage FRM methods were short-listed for consideration, the method was ultimately rejected in this stage of Optioneering, as storage would not be technically effective at sub-catchment scale. There is therefore considered to be no potential impact pathway between the implementation of FRM methods for any of the AFAs in UoM12 and the qualifying interests of Wicklow Mountains SAC as upstream/ upcatchment FRM methods will not be used.
<b>Potential Impacts</b>	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Wicklow Mountains SAC and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP</b>

<b>Name: Wicklow Mountains SPA</b> <span style="float: right;"><b>Site Code: (IE00004040)</b></span>	
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest:</b> Merlin ( <i>Falco columbarius</i> ) [A098] and Peregrine ( <i>Falco peregrinus</i> ) [A103].
<b>Proximity to AFA(s) and Linkage</b>	Wicklow Mountains SPA is a large SPA, spread over a number of hydrometric areas including UoM12. One AFA, Baltinglass (11.4 linear km) has hydraulic connectivity with the SPA via the Slaney and Little Slaney Rivers as the SPA forms part of the source area for these rivers. The Preliminary Options Report for the Slaney Sub-Catchment SSA reported that although storage FRM methods were short-listed for consideration, the method was ultimately rejected in this stage of Optioneering, as storage would not be technically effective at sub-catchment scale. There is therefore considered to be no potential impact pathway between the implementation of FRM methods for any of the AFAs in UoM12 and the qualifying interests of Wicklow Mountains SPA as upstream / upcatchment FRM methods will not be used.
<b>Potential Impacts</b>	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Wicklow Mountains SPA and the implementation of FRM methods for any of the AFAs in UoM12. Consequently this site has been removed from requiring any further screening for the UoM12 FRMP</b>

## UOM13 SCREENING TABLES

Name: Ballyteige Burrow SAC		Site Code: (IE00000696)
Qualifying Interest(s)	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Coastal lagoons [1150], Annual vegetation of drift lines [1210], Perennial vegetation of stony banks [1220], <i>Salicornia</i> and other annuals colonising mud and sand [1310], <i>Spartina</i> swards (<i>Spartininon maritima</i>) [1320], Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330], Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410], Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) [1420], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] and Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150].</p>	
Proximity to AFA(s) and Linkage	<p>Ballyteige Burrow SAC is a long, narrow spit of coarse sand and gravel with an impressive sand dune system (Ballyteige Burrow) forms most of the seaward boundary of this site. Behind the spit lies a shallow, tidal sea inlet and estuary of the Duncormick River (The Cull). One AFA in UoM13, Kilmore (0.0km), is located within the area of influence of Ballyteige Burrow SAC. Kilmore is subject to coastal flood risk only and parts of the SAC are within the AFA boundary. There is therefore a direct pathway for potential impacts from the use of FM methods in Kilmore AFA on the qualifying interests of Ballyteige Burrow SAC and further assessment is recommended to assess the significance of these potential impacts.</p>	
Potential Impacts	<p><b>A potential impact pathway exists between the qualifying interests at Ballyteige Burrow SAC and the implementation of FRM methods for Kilmore AFA. Appropriate Assessment is required to assess the significance of these impacts.</b></p>	

Name: Ballyteige Burrow SPA		Site Code: (IE00004020)
Qualifying Interest(s)	<p><b>Species of Special Conservation Interest:</b> Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] and Wetland and Waterbirds [A999] habitats.</p>	
Proximity to AFA(s) and Linkage	<p>Ballyteige Burrow SPA has a range of coastal habitats, including various types of sand dunes, salt meadows, and intertidal sand and mud flats. Former estuarine areas adjacent to the site have been reclaimed as polders and are intensively managed for agriculture. It is a site of importance for wintering waterfowl.</p> <p>One AFA in UoM13, Kilmore (0.0km), is located within the area of influence of Ballyteige Burrow SPA. Kilmore is subject to coastal flood risk only and parts of the SPA are within the AFA boundary. There is therefore a direct pathway for potential impacts from the implementation of FRM methods in Kilmore AFA on the qualifying interests of Ballyteige Burrow SPA and further assessment is recommended to assess the significance of these potential impacts.</p>	
Potential Impacts	<p><b>A potential impact pathway exists between the qualifying interests at Ballyteige Burrow SPA and the implementation of FRM methods for Kilmore AFA. Appropriate Assessment is required to assess the significance of these impacts.</b></p>	

Name: Bannow Bay SAC		Site Code: (IE00000697)
Qualifying Interest(s)	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Perennial vegetation of stony banks [1220], <i>Salicornia</i> and other annuals colonising mud and sand [1310], Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330], Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410],</p>	

	Mediterranean and thermo-Atlantic halophilous scrubs ( <i>Sarcocornetea fruticosi</i> ) [1420], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] and Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130].
<b>Proximity to AFA(s) and Linkage</b>	Bannow Bay SAC is located in UoM13. It encompasses Bannow Bay and extends up the Corock and Owenduff Rivers. There is one AFA in UoM13 with the potential to influence Bannow Bay SAC: Kilmore (7.5km). Kilmore AFA is subject to coastal flood risk only. It is separated from the SAC by approximately 7.5km of coastal waters. Further assessment is necessary to determine whether coastal FRM methods such as hard defences may impact the qualifying interests, e.g. by causing alterations to sediment transport which may affect the supply of sand to the dunes.
<b>Potential Impacts</b>	<b>A potential impact pathway exists between the qualifying interests at Bannow Bay SAC and the implementation of FRM methods for Kilmore AFA. Appropriate Assessment is required to assess the significance of these impacts.</b>

<b>Name: Bannow Bay SPA</b>		<b>Site Code: (IE00004033)</b>
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest:</b> Light-bellied Brent Goose ( <i>Branta bernicla hrota</i> ) [A046], Shelduck ( <i>Tadorna tadorna</i> ) [A048], Pintail ( <i>Anas acuta</i> ) [A054], Oystercatcher ( <i>Haematopus ostralegus</i> ) [A130], Golden Plover ( <i>Pluvialis apricaria</i> ) [A140], Grey Plover ( <i>Pluvialis squatarola</i> ) [A141], Lapwing ( <i>Vanellus vanellus</i> ) [A142], Knot ( <i>Calidris canutus</i> ) [A143], Dunlin ( <i>Calidris alpina</i> ) [A149], Black-tailed Godwit ( <i>Limosa limosa</i> ) [A156], Bar-tailed Godwit ( <i>Limosa lapponica</i> ) [A157], Curlew ( <i>Numenius arquata</i> ) [A160], Redshank ( <i>Tringa totanus</i> ) [A162], Wetland and Waterbirds [A999].	
<b>Proximity to AFA(s) and Linkage</b>	Bannow Bay SPA is a large, sheltered estuarine system located in UoM13 with extensive areas of intertidal mud and sand flats exposed at low tide. There is one AFA in UoM13 with the potential to influence Bannow Bay SPA: Kilmore (7.9km). Kilmore AFA is subject to coastal flood risk only. It is separated from the SPA by approximately 8km of coastal waters. Further assessment is necessary to determine whether coastal FRM methods such as hard defences may impact the qualifying interests, e.g. by causing alterations to sediment transport which may affect the supply of sand to the dunes.	
<b>Potential Impacts</b>	<b>A potential impact pathway exists between the qualifying interests of Bannow Bay SPA and the implementation of FRM methods for Kilmore AFA. Appropriate Assessment is required to assess the significance of these impacts.</b>	

<b>Name: Blackstairs Mountains SAC</b>		<b>Site Code: (IE00 000770)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] and European dry heaths [4030].	
<b>Proximity to AFA(s) and Linkage</b>	Blackstairs Mountains SAC straddles two Units of Management, UoM12 and UoM14. However as it is located within the zone of influence of UoM13 it has the potential to be affected by FRM methods for AFAs in UoM13 and therefore is being screened for the UoM13 FRMP. The only AFA in UoM13, Kilmore, subject to coastal flood risk only and is c.33km from the SAC. There is no potential impact pathway between FRM methods used for this AFA and the qualifying interest of Blackstairs Mountains SAC.	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the implementation of FRM methods at the AFA in UoM13 and the qualifying interests of Blackstairs Mountain SAC. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>	

<b>Name: Blackwater Bank SAC</b>	<b>Site Code: (IE002953)</b>
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<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Sandbanks which are slightly covered by sea water all the time [1110].
<b>Proximity to AFA(s) and Linkage</b>	The Blackwater Bank SAC consists of a series of offshore sandbanks running roughly parallel to the coastline of Co. Wexford. Although Blackwater Bank SAC lies offshore from UoMs 11&12 as it is located within the zone of influence of UoM13 it has the potential to be affected by FRM methods for AFAs in UoM13 and therefore is being screened for the UoM13 FRMP. Kilmore AFA, which is subject to coastal flood risk, is located approximately 26km by sea from the Blackwater Bank, across open coastal waters and around Carnsore Point. Due to the distances involved, there is not considered to be any potential impact pathway between the qualifying interest of the Blackwater Bank SAC and the implementation of FRM methods at Kilmore AFA.
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the implementation of FRM methods at Kilmore AFA and the qualifying interest of Blackwater Bank SAC. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>

<b>Name: Carnsore Point SAC</b>		<b>Site Code: (IE002269)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Mudflats and sandflats not covered by seawater at low tide [1140] and Reefs [1170].	
<b>Proximity to AFA(s) and Linkage</b>	Carnsore Point SAC comprises the area of sea and underlying bedrock and sediments off Carnsore Point. It includes rocky reefs that are strewn with boulders, cobbles and patches of sand, both on the shore and underwater. Carnsore Point SAC is located in the nearshore area of UoM13 but extends a short distance into UoM12. Kilmore AFA, which is subject to coastal flood risk only, is 8.2km from the SPA boundary. It is separated from the SPA by open coastal waters and the natural promontory at Crossfarnoge (or Forlorn) Point. There is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interests of Carnsore Point SAC.	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the implementation of FRM methods at Kilmore AFA in UoM13 and the qualifying interests of Carnsore Point SAC. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>	

<b>Name: Hook Head SAC</b>		<b>Site Code: (IE000764)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Reefs [1170], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] and Large shallow inlets and bays [1160].	
<b>Proximity to AFA(s) and Linkage</b>	Hook Head SAC is located in the nearshore area of UoM13, encompassing the waters around the eastern side of Hook Head and the foreshore around the western side, adjacent to Waterford Harbour. Kilmore AFA, which is subject to coastal flood risk only, is 9.4km from the SAC boundary and is separated from it by open coastal waters. Further assessment may be necessary to determine whether the use of coastal FRM methods such as hard defences may impact the qualifying interests, e.g. by causing alterations to sediment transport which may affect the benthic communities living in these habitats.	
<b>Potential Impacts</b>	<b>A potential impact pathway exists between certain qualifying interest of Hook Head SAC and the use of coastal FRM methods at Kilmore AFA. Appropriate Assessment is required to assess the significance of these impacts.</b>	

<b>Name: Keeragh Islands SPA</b>		<b>Site Code: (IE004118)</b>
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest:</b> Cormorant ( <i>Phalacrocorax carbo</i> ) [A017].	

Proximity to AFA(s) and Linkage	The Keeragh Islands are two low-lying islets located just over 1 km offshore from the south Wexford coastline. The site includes the islets and associated rocky shorelines and reefs, as well as the surrounding marine area to a distance of 200 metres. Kilmore AFA is located 5.8km from the boundary of the SPA, across open coastal waters. Due to the separation distance, across open coastal waters, no impacts from the implementation of coastal FRM methods at Kilmore AFA are predicted to occur on the qualifying interest of the Keeragh Islands SPA.
Potential Impacts	<b>There is no potential impact pathway between the implementation of FRM methods for Kilmore AFA in UoM13 and the qualifying interests of Keeragh Islands SPA. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>

<b>Name: Lady's Island Lake SAC</b>		<b>Site Code: (IE000704)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Coastal lagoons [1150], Perennial vegetation of stony banks [1220] and Reefs [1170].	
<b>Proximity to AFA(s) and Linkage</b>	Lady's Island Lake SAC is comprised of a shallow, brackish coastal lagoon separated from the sea by a sand and shingle barrier. The site includes the intertidal reef of Carnsore Point, and the area of reef to the west of the point. There is one AFA in UoM 13, Kilmore (9.3km), where FRM methods may have potential impacts on Lady's Island Lake SAC.  Kilmore AFA is subject to coastal flood risk only and is 9.3km from the SAC boundary. It is separated from the SAC by open coastal waters and the natural promontory at Crossfarnoge (or Forlorn) Point. The SAC itself is a coastal lagoon separated from open waters by a sand and shingle barrier. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interests of Lady's Island Lake SAC.	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the use of coastal FRM methods for Kilmore AFA in UoM13 and the qualifying interests of Lady's Island Lake SAC. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>	

<b>Name: Lady's Island Lake SPA</b>		<b>Site Code: (IE004009)</b>
<b>Qualifying Interest(s)</b>	<b>Species of Special Conservation Interest:</b> Gadwall ( <i>Anas strepera</i> ) [A051], Black-headed Gull ( <i>Chroicocephalus ridibundus</i> ) [A179], Sandwich Tern ( <i>Sterna sandvicensis</i> ) [A191], Roseate Tern ( <i>Sterna dougallii</i> ) [A192], Common Tern ( <i>Sterna hirundo</i> ) [A193], Arctic Tern ( <i>Sterna paradisaea</i> ) [A194] and Wetland and Waterbirds [A999] habitat.	
<b>Proximity to AFA(s) and Linkage</b>	Lady's Island Lake SPA comprises a lagoon habitat which is regarded as an excellent example of a sedimentary lagoon with a sand/shingle barrier. It is by far the largest and best example of this type of lagoon in the country. There is one AFA in UoM 13, Kilmore (9.7km), where FRM methods may have potential impacts on Lady's Island Lake SPA. Kilmore AFA, which is subject to coastal flood risk only, is 9.7km from the SPA boundary. It is separated from the SPA by open coastal waters and the natural promontory at Crossfarnoge (or Forlorn) Point. The SPA itself is a coastal lagoon separated from open waters by a sand and shingle barrier. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interests of Lady's Island Lake SPA.	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the implementation of FRM methods at Kilmore AFA in UoM13 and the qualifying interests of Lady's Island Lake SPA. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>	

<b>Name: Long Bank SAC</b>	<b>Site Code: (IE002161)</b>
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<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> Sandbanks which are slightly covered by sea water all the time [1110]
<b>Proximity to AFA(s) and Linkage</b>	The Long Bank SAC incorporates Long Bank and Holdens Bed which are offshore sandbanks located several kilometres to the east of Rosslare and Wexford Harbour. Long Bank SAC is located within 15km of UoM13 and therefore has the potential to be influenced by the implementation of FRM methods at Kilmore AFA. As such, it has been included in the screening for the UoM13 FRMP.  Kilmore is around 18 linear kilometres from Long Bank SAC and approximately 30km by sea, via Carnsore Point. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interest of Long Bank SAC.
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the implementation of FRM methods at Kilmore AFA in UoM13 and the qualifying interests of Long Bank SAC. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>

<b>Name: Lower River Suir SAC</b>		<b>Site Code: (IE00002137)</b>
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330], Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410], Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430], Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0], Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] and <i>Taxus baccata</i> woods of the British Isles [91J0].</p> <p><b>Annex II Species:</b> <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029], <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092], <i>Petromyzon marinus</i> (Sea Lamprey) [1095], <i>Lampetra planeri</i> (Brook Lamprey) [1096], <i>Lampetra fluviatilis</i> (River Lamprey) [1099], <i>Alosa fallax fallax</i> (Twaite Shad) [1103], <i>Salmo salar</i> (Salmon) [1106] and <i>Lutra lutra</i> (Otter) [1355].</p>	
<b>Proximity to AFA(s) and Linkage</b>	<p>The Lower River Suir SAC consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford, and many tributaries. The Lower River Suir SAC is in UoM16, however as it is located within the zone of influence of UoM13 it has the potential to be affected by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p> <p>The only AFA in UoM13, Kilmore, is subject to coastal flood risk only and is 25 linear kilometres from the SAC. There is no potential impact pathway between FRM methods used for this AFA and the qualifying interest of Lower River Suir SAC.</p>	
<b>Potential Impacts</b>	<b>There is no potential impact pathway between the implementation of FRM methods at Kilmore AFA in UoM13 and the qualifying interests of the Lower River Suir SAC. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>	

<b>Name: Raven Point Nature Reserve SAC</b>		<b>Site Code: (IE000710)</b>
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salix arenariae</i>) [2170], Annual vegetation of drift lines [1210], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Humid dune slacks [2190], Mudflats and sandflats not covered by seawater at low tide [1140] and Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330].</p>	
<b>Proximity to AFA(s) and Linkage</b>	The Raven Point Nature Reserve SAC incorporates a large sand dune system comprising a suite of coastal habitats which are listed on Annex I of the E.U. Habitats Directive. Raven Point	

	<p>Nature Reserve SAC straddles two Units of Management, UoM11 and UoM12. As it is located within the zone of influence of UoM13 it has the potential to be affected by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p> <p>Kilmore AFA is 18.8 linear kilometres from Raven Point Nature Reserve SAC and approximately 37km by sea, via Carnsore Point. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interest of Raven Point Nature Reserve SAC.</p>
Potential Impacts	<p><b>It is concluded that there is no potential impact pathway between the qualifying interests of the Raven Point Nature Reserve SAC and the AFA in UoM13. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b></p>

Name: River Barrow And River Nore SAC		Site Code: (IE00002162)
Qualifying Interest(s)	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Salicornia and other annuals colonising mud and sand [1310], Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330], Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410], Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260], European dry heaths [4030], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430], Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220], Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] and Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0].</p> <p><b>Annex II Species:</b> <i>Vertigo moulinsiana</i> (Desmoulin's Whorl Snail) [1016], <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029], <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092], <i>Petromyzon marinus</i> (Sea Lamprey) [1095], <i>Lampetra planeri</i> (Brook Lamprey) [1096], <i>Lampetra fluviatilis</i> (River Lamprey) [1099], <i>Alosa fallax fallax</i> (Twaite Shad) [1103], <i>Salmo salar</i> (Salmon) [1106], <i>Lutra lutra</i> (Otter) [1355], <i>Trichomanes speciosum</i> (Killarney Fern) [1421] and <i>Margaritifera durrovensis</i> (Nore Pearl Mussel) [1990].</p>	
Proximity to AFA(s) and Linkage	<p>The River Barrow And River Nore SAC covers an extensive area as it consists of the freshwater stretches of the Barrow and Nore River catchments in UoMs 14&amp;15 as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. As it is located within the zone of influence of UoM13 it has the potential to be affected by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p> <p>Kilmore AFA is 17.4 linear kilometres from River Barrow And River Nore SAC and has no hydraulic connectivity with it, being separated by several km of open coastal waters and Hook Head. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interests of the River Barrow And River Nore SAC.</p>	
Potential Impacts	<p><b>As there is no potential impact pathway between the qualifying interests of the River Barrow And River Nore SAC and any of the AFAs in UoM13, it has been concluded that the SAC will not be impacted by any of the FRM methods proposed in the UoM13 FRMP. Consequently the SAC has been removed from any further screening.</b></p>	

Name: River Nore SPA		Site Code: (IE00004233)
Qualifying Interest(s)	<p><b>Species of Special Conservation Interest:</b> Kingfisher (<i>Alcedo atthis</i>) [A229].</p>	
Proximity to AFA(s) and Linkage	<p>The River Nore SPA is a long, linear site that includes sections of a number of rivers including the River Nore, the Delour River, the Erkina River, the River Goul and the Kings River. The site includes the river channel and marginal vegetation.</p> <p>The River Nore SPA is located in UoM15. However, as it is located within the zone of influence of UoM13 it has the potential to be influenced by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p>	

	Kilmore AFA is c. 37 linear kilometres from River Nore SPA and has no hydraulic connectivity with it. Due to the distances involved, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interest of the River Nore SPA.
Potential Impacts	<b>As there is no potential impact pathway between the qualifying interests of the River Nore SPA and any of the AFAs in UoM13, it has been concluded that the SPA will not be impacted by any of the FRM methods proposed in the UoM13 FRMP. Consequently the SPA has been removed from any further screening.</b>

<b>Name: Saltee Islands SAC</b>		<b>Site Code: (IE0000707)</b>
<b>Qualifying Interest(s)</b>	<p><b>Annex I Habitats:</b> Mudflats and sandflats not covered by seawater at low tide [1140], Large shallow inlets and bays [1160], Reefs [1170], Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] and Submerged or partially submerged sea caves [8330].</p> <p><b>Annex II species:</b> <i>Halichoerus grypus</i> (Grey Seal) [1364].</p>	
<b>Proximity to AFA(s) and Linkage</b>	Kilmore AFA in UoM 13 (0.5km) has the potential to influence Saltee Islands SAC. Kilmore is subject to coastal flood risk and the implementation of FRM methods such as hard defences has the potential to impact the qualifying interests of the Saltee Islands SAC. Further examination of the potential significance of these impacts is therefore recommended.	
<b>Potential Impacts</b>	<b>There exists the potential for direct impacts on the qualifying interest of the Saltee Islands SAC from the implementation of FRM methods for Kilmore AFA, Appropriate Assessment is required to examine the significance of these potential impacts.</b>	

<b>Name: Saltee Islands SPA</b>		<b>Site Code: (IE00004002)</b>
<b>Qualifying Interest(s)</b>	<p><b>Species of Special Conservation Interest:</b> Fulmar (<i>Fulmarus glacialis</i>) [A009], Gannet (<i>Morus bassanus</i>) [A016], Cormorant (<i>Phalacrocorax carbo</i>) [A017], Shag (<i>Phalacrocorax aristotelis</i>) [A018], Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183], Herring Gull (<i>Larus argentatus</i>) [A184], Kittiwake (<i>Rissa tridactyla</i>) [A188], Guillemot (<i>Uria aalge</i>) [A199], Razorbill (<i>Alca torda</i>) [A200], Puffin (<i>Fratercula arctica</i>) [A204].</p>	
<b>Proximity to AFA(s) and Linkage</b>	Kilmore AFA in UoM13 (3.3km), has the potential to impact Saltee Islands SPA. Kilmore is subject to coastal flood risk and the implementation of FRM methods such as hard defences has the potential to impact the qualifying interests of the Saltee Islands SPA. Further examination of the potential significance of these impacts is therefore recommended.	
<b>Potential Impacts</b>	<b>There exists the potential for direct impacts on the qualifying interest of the Saltee Islands SPA from the implementation of FRM methods for Kilmore AFA, Appropriate Assessment is required to examine the significance of these potential impacts.</b>	

<b>Name: Screen Hills SAC</b>		<b>Site Code: (IE000708)</b>
<b>Qualifying Interest(s)</b>	<b>Annex I Habitats:</b> European dry heaths [4030], Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> ) [3110].	
<b>Proximity to AFA(s) and Linkage</b>	The Screen Hills SAC is characterised by a type of glacial landscape known as “kettle and kame”, a term which refers to kettlehole lakes found in hollows between small hills. The lakes, which are mostly small, mark the positions of former ice blocks in an acidic, sandy moraine. The Screen Hills SAC straddles two Units of Management, UoM11 and UoM12. However, as it is located within the zone of influence of UoM13 it has the potential to be influenced by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.	

	Kilmore AFA is 22.6 linear kilometres from Screen Hills SAC and has no hydraulic connectivity with it as it is an upland SAC in a separate hydrometric area. There is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interests of the Screen Hills SAC.
Potential Impacts	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Screen Hills SAC and the implementation of FRM methods at Kilmore AFA in UoM13. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>

Name: Slaney River Valley SAC		Site Code: (IE000781)
Qualifying Interest(s)	<p><b>Annex I Habitats:</b> Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260], Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0], Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in British Isles [91A0].</p> <p><b>Annex II Species:</b> <i>Lampetra fluviatilis</i> (River Lamprey) [1099], <i>Lampetra planeri</i> (Brook Lamprey) [1096], <i>Petromyzon marinus</i> (Sea Lamprey) [1095], <i>Salmo salar</i> (Salmon) [1106], <i>Margaritifera margaritifera</i> (Freshwater Pearl Muscle) [1029], <i>Lutra lutra</i> (Otter) [1355], <i>Phoca vitulina</i> (Common Seal) [1365], <i>Alosa fallax</i> (Twaite Shad) [1103].</p>	
Proximity to AFA(s) and Linkage	This SAC comprises the freshwater stretches of the River Slaney as far as the Wicklow Mountains; a number of tributaries, the larger of which include the Bann, Boro, Glasha, Clody, Derry, Derreen, Douglas and Carrigower Rivers; the estuary at Ferrycarrig; and Wexford Harbour. Kilmore AFA in UoM13 (12.8km) is located within the potential zone of influence of the Slaney River Valley SAC. Kilmore is subject to coastal flood risk only and is separated from the Slaney River Valley SAC by approximately 38km of open coastal waters. There is no potential impact pathway between FRM methods used for this AFA and the qualifying interests of the SAC.	
Potential Impacts	<b>It is concluded that there is no potential impact pathway between the qualifying interests of the Slaney River Valley SAC and the implementation of FRM methods at Kilmore AFA in UoM13. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b>	

Name: Tacumshin Lake SAC		Site Code: (IE0000709)
Qualifying Interest(s)	<b>Annex I Habitats:</b> Coastal lagoons [1150], Annual vegetation of drift lines [1210], Perennial vegetation of stony banks [1220], Embryonic shifting dunes [2110] and Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120].	
Proximity to AFA(s) and Linkage	Tacumshin Lake is a shallow coastal lagoon (formerly a shallow sea bay) which over time has been separated from the sea by a gravel/sand spit that has extended across the mouth of the bay from east to west, due to long-shore drift. Kilmore AFA in UoM13 (3.5km) has the potential to influence Tacumshin Lake SAC. Kilmore is subject to coastal flood risk and the implementation of FRM methods such as hard defences has the potential to impact the qualifying interests of the Tacumshin Lake SAC. Further examination of the potential significance of these impacts is therefore recommended.	
Potential Impacts	<b>There exists the potential for indirect impacts on the qualifying interest of the Tacumshin Lake SAC from the use of coastal FRM methods at Kilmore AFA, Appropriate Assessment is required to examine the significance of these potential impacts.</b>	

Name: Tacumshin Lake SPA		Site Code: (IE00004092)
Qualifying Interest(s)	<p><b>Species of Special Conservation Interest:</b> Little Grebe (<i>Tachybaptus ruficollis</i>) [A004], Bewick's Swan (<i>Cygnus columbianus bewickii</i>) [A037], Whooper Swan (<i>Cygnus cygnus</i>) [A038], Wigeon (<i>Anas penelope</i>) [A050], Gadwall (<i>Anas strepera</i>) [A051], Teal (<i>Anas crecca</i>) [A052], Pintail (<i>Anas acuta</i>) [A054], Shoveler (<i>Anas clypeata</i>) [A056], Tufted Duck (<i>Aythya fuligula</i>) [A061], Coot (<i>Fulica atra</i>) [A125], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Black-tailed Godwit (<i>Limosa limosa</i>) [A156] and Wetland and Waterbirds [A999].</p>	
Proximity to AFA(s) and Linkage	<p>Tacumshin Lake is a shallow coastal lagoon situated on the south Co. Wexford coast. The waterfowl population of the lagoon is exceptionally diverse and the area supports large numbers of birds through the whole year, which is unusual among Irish wetlands.</p> <p>Kilmore AFA, in UoM13 and which is subject to coastal flood risk only, is 4.4km from the SPA boundary. It is separated from the SPA by open coastal waters and the natural promontory at Crossfarnoge (or Forlorn) Point. Kilmore is subject to coastal flood risk and the implementation of FRM methods such as hard defences has the potential to impact the qualifying interests of the Tacumshin Lake SPA. Further examination of the potential significance of these impacts is therefore recommended.</p>	
Potential Impacts	<p><b>There exists the potential for indirect impacts on the qualifying interest of the Tacumshin Lake SPA from the use of coastal FRM methods at Kilmore AFA, Appropriate Assessment is required to examine the significance of these potential impacts.</b></p>	

Name: The Raven SPA		Site Code: (IE004019)
Qualifying Interest(s)	<p><b>Species of Special Conservation Interest:</b> Red-throated Diver (<i>Gavia stellata</i>) [A001], Cormorant (<i>Phalacrocorax carbo</i>) [A017], Common Scoter (<i>Melanitta nigra</i>) [A065], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Sanderling (<i>Calidris alba</i>) [A144], Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] and Wetland and Waterbirds [A999] habitat.</p>	
Proximity to AFA(s) and Linkage	<p>The Raven SPA is dynamic sand dune system where sand flats, lagoons, driftlines and small dune slacks develop and are being continuously transformed by the activity of the sea and the wind. It straddles two Units of Management, UoM11 and UoM12. However, as it is located within the zone of influence of UoM13 it has the potential to be influenced by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p> <p>Kilmore AFA is 16.2 linear kilometres from the Raven SPA and approximately 37km by sea, via Carnsore Point. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interests of the Raven SPA.</p>	
Potential Impacts	<p><b>It is concluded that there is no potential impact pathway between the qualifying interests of the Raven SPA and the implementation of FRM methods at Kilmore AFA in UoM13. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b></p>	

Name: Tramore Back Strand SPA		Site Code: (IE004027)
Qualifying Interest(s)	<p>Species of Special Conservation Interest: Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Dunlin (<i>Calidris alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Curlew (<i>Numenius arquata</i>) [A160] and Wetland and Waterbirds [A999].</p>	
Proximity to AFA(s) and	<p>Tramore Back Strand SPA comprises a medium sized estuary sheltered from the open sea by a</p>	

Linkage	<p>long, shingle spit, with high dunes and is located in UoM17. However, as it is located within the zone of influence of UoM13 it has the potential to be influenced by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p> <p>Kilmore AFA is c.29 linear kilometres from Tramore Back Strand SPA and is separated from it by Hook Head and Waterford Harbour. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interest of the Tramore Back Strand SPA.</p>
Potential Impacts	<p><b>It is concluded that there is no potential impact pathway between the qualifying interests of Tramore Back Strand SPA and the implementation of FRM methods at Kilmore AFA in UoM13. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</b></p>

Name: Tramore Dunes and Backstrand SAC		Site Code: (IE000671)
Qualifying Interest(s)	<p><b>Annex I Habitats:</b> Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330], Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130], Annual vegetation of drift lines [1210], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120], Mudflats and sandflats not covered by seawater at low tide [1140], Perennial vegetation of stony banks [1220] and <i>Salicornia</i> and other annuals colonizing mud and sand [1310].</p>	
Proximity to AFA(s) and Linkage	<p>Tramore Dunes and Backstrand SAC comprises a spit of shingle and sand across a shallow bay accompanied by sand dunes and is located in UoM17. However, as it is located within the zone of influence of UoM13 it has the potential to be influenced by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p> <p>Kilmore AFA is c.29 linear kilometres from Tramore Dunes and Backstrand SAC and is separated from it by Hook Head and Waterford Harbour. Due to the distances involved, across open coastal waters, there is not considered to be any potential impact pathway between the use of coastal FRM methods at Kilmore AFA and the qualifying interest of the Tramore Dunes and Backstrand SAC.</p>	
Potential Impacts	<p>It is concluded that there is no potential impact pathway between the qualifying interests of Tramore Dunes and Backstrand SAC and the implementation of FRM methods at Kilmore AFA in UoM13. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP.</p>	

Name: Wexford Harbour and Slobs SPA		Site Code: (IE004076)
Qualifying Interest(s)	<p><b>Species of Special Conservation Interest:</b> Little Grebe (<i>Tachybaptus ruficollis</i>) [A004], Great Crested Grebe (<i>Podiceps cristatus</i>) [A005], Cormorant (<i>Phalacrocorax carbo</i>) [A017], Grey Heron (<i>Ardea cinerea</i>) [A028], Bewick's Swan (<i>Cygnus columbianus bewickii</i>) [A037], Whooper Swan (<i>Cygnus cygnus</i>) [A038], Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046], Shelduck (<i>Tadorna tadorna</i>) [A048], Wigeon (<i>Anas penelope</i>) [A050], Teal (<i>Anas crecca</i>) [A052], Mallard (<i>Anas platyrhynchos</i>) [A053], Pintail (<i>Anas acuta</i>) [A054], Scaup (<i>Aythya marila</i>) [A062], Goldeneye (<i>Bucephala clangula</i>) [A067], Red-breasted Merganser (<i>Mergus serrator</i>) [A069], Hen Harrier (<i>Circus cyaneus</i>) [A082], Coot (<i>Fulica atra</i>) [A125], Oystercatcher (<i>Haematopus ostralegus</i>) [A130], Golden Plover (<i>Pluvialis apricaria</i>) [A140], Grey Plover (<i>Pluvialis squatarola</i>) [A141], Lapwing (<i>Vanellus vanellus</i>) [A142], Knot (<i>Calidris canutus</i>) [A143], Sanderling (<i>Calidris alba</i>) [A144], Dunlin (<i>Calidris alpina</i>) [A149], Black-tailed Godwit (<i>Limosa limosa</i>) [A156], Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157], Curlew (<i>Numenius arquata</i>) [A160], Redshank (<i>Tringa totanus</i>) [A162], Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179], Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183], Little Tern (<i>Sterna albifrons</i>) [A195], Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395] and Wetland and Waterbirds [A999]</p>	



UoM12 SCREENING TABLES

<p>Proximity to AFA(s) and Linkage</p>	<p>Wexford Harbour is the lowermost part of the estuary of the River Slaney. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney. The site is of international importance for several species of waterbirds but also because it regularly supports well in excess of 20,000 waterbirds. Wexford Harbour and Slobs SPA is located in UoM12. However, as it is located within the zone of influence of UoM13 it has the potential to be influenced by FRM methods used in UoM13 and therefore is being screened for the UoM13 FRMP.</p> <p>Kilmore AFA in UoM13 is located 10.6 linear kilometres from Wexford Harbour and Slobs SPA and is within its potential area of influence. Kilmore is subject to coastal flood risk only and the distance between the sites by sea is c.38km of open coastal waters. Due to the distance between the AFA and the SPA there is not considered to be any potential impact pathway between the use of FRM method at the AFA and the qualifying interests of the SPA.</p>
<p>Potential Impacts</p>	<p><b>It is concluded that there is no potential impact pathway between the qualifying interests of the Wexford Harbour and Slobs SPA and the implementation of FRM methods at Kilmore AFA. Consequently this site has been removed from requiring any further screening for the UoM13 FRMP</b></p>

## **APPENDIX C**

### **Qualifying interests, key environmental conditions supporting site integrity and conservation objectives**

## APPENDIX C: QUALIFYING INTERESTS AND CONSERVATION OBJECTIVES OF ASSESSED SITES

Table C1 – Qualifying interests, key environmental conditions supporting site integrity and conservation objectives for Natura 2000 sites in UoM11-13.

Site Name and Code	Qualifying interests	Key environmental conditions supporting site integrity	Conservation Objectives	Water-dependent
Slaney River Valley SAC (000781)	Freshwater Pearl Mussel <i>Margaritifera margaritifera</i> [1029]	Riverine habitat. Water quality (Q5). Riverbed breeding gravels. Unhindered migratory routes for salmon.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Population</b> – maintaining itself on a long-term basis as a viable component of its natural habitat.</p> <p><b>Range</b> – neither being reduced nor likely to be reduced for the foreseeable future.</p> <p><b>Habitat</b> – there is, and will probably continue to be, a sufficiently large habitat to maintain populations on a long-term basis.</p>	Yes
	Sea Lamprey <i>Petromyzon marinus</i> [1095]	Riverine habitat. Water quality. Riverbed breeding gravels and silt nursery substrate. Unhindered migratory channels.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Distribution: extent of anadromy</b> – Greater than 75% of main stem length of rivers accessible from estuary.</p> <p><b>Population structure of juveniles</b> – At least three age/size groups present.</p> <p><b>Juvenile density in fine sediment</b> – Juvenile density at least 1/m<sup>2</sup>.</p> <p><b>Extent and distribution of spawning habitat</b> - No decline in extent and distribution of spawning beds. Improved dispersal of spawning beds into areas upstream of barriers.</p> <p><b>Availability of juvenile habitat</b> - More than 50% of sample sites positive.</p>	
	Brook Lamprey <i>Lampetra planeri</i> [1096]	Riverine habitat. Water quality. Riverbed breeding gravels and silt nursery substrate. Unhindered migratory channels.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Distribution</b> - Access to all water courses down to first order streams.</p> <p><b>Population structure of juveniles</b> - At least three age/size groups of brook/river lamprey present.</p> <p><b>Juvenile density in fine sediment</b> - Mean catchment juvenile density of brook/river lamprey at least 2/m<sup>2</sup>.</p>	

			<p><b><u>Extent and distribution of spawning habitat</u></b> - No decline in extent and distribution of spawning beds.</p> <p><b><u>Availability of juvenile habitat</u></b> - More than 50% of sample sites positive.</p>
River Lamprey <i>Lampetra fluviatilis</i> [1099]	Riverine habitat. Water quality. Riverbed breeding gravels and silt nursery substrate. Unhindered migratory channels.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b><u>Distribution: extent of anadromy</u></b> - Greater than 75% of main stem and major tributaries down to second order accessible from estuary.</p> <p><b><u>Population structure of juveniles</u></b> - At least three age/size groups of river/brook lamprey present.</p> <p><b><u>Juvenile density in fine sediment</u></b> - Mean catchment juvenile density of brook/river lamprey at least 2/m<sup>2</sup>.</p> <p><b><u>Extent and distribution of spawning habitat</u></b> - No decline in extent and distribution of spawning beds.</p> <p><b><u>Availability of juvenile habitat</u></b> - More than 50% of sample sites positive.</p>	
Twaite Shad <i>Alosa fallax</i> [1103]	Riverine habitat. Water quality. Riverbed breeding gravels. Unhindered migratory routes	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b><u>Distribution: extent of anadromy</u></b> - Greater than 75% of main stem length of rivers accessible from estuary.</p> <p><b><u>Population structure- age classes</u></b> - More than one age class present.</p> <p><b><u>Extent and distribution of spawning habitat</u></b> - No decline in extent and distribution of spawning habitats.</p> <p><b><u>Water quality - oxygen levels</u></b> - No lower than 5mg/l.</p> <p><b><u>Spawning habitat quality: Filamentous algae; macrophytes; sediment</u></b> - Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth.</p>	
Atlantic Salmon <i>Salmo salar</i> [1106]	Riverine habitat. Water quality (Q4-5). Riverbed breeding gravels. Quality riparian vegetation. Unhindered	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b><u>Distribution: extent of anadromy</u></b> - 100% of river channels down to second order accessible from estuary.</p>	

		migratory routes	<p><b>Adult spawning fish</b> - Conservation Limit (CL) for each system consistently exceeded.</p> <p><b>Salmon fry abundance</b> - Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling.</p> <p><b>Out-migrating smolt abundance</b> - No significant decline.</p> <p><b>Number and distribution of redds</b> - No decline in number and distribution of spawning redds due to anthropogenic causes.</p> <p><b>Water quality</b> - At least Q4 at all sites sampled by EPA.</p>	
	Otter <i>Lutra lutra</i> [1355]	Prey availability. Water Quality. Riparian vegetation for breeding sites. Unhindered passage along waterways.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Distribution</b> – No significant decline.</p> <p><b>Extent of terrestrial habitat</b> - No significant decline. Area mapped and calculated as 64.7ha above high water mark (HWM); 453.4ha along river banks/ around ponds.</p> <p><b>Extent of marine habitat</b> - No significant decline. Area mapped and calculated as 534.7ha.</p> <p><b>Extent of freshwater (river) habitat</b> - No significant decline. Length mapped and calculated as 264.1km.</p> <p><b>Extent of freshwater (lake/lagoon) habitat</b> - No significant decline. Area mapped and calculated as 0.4ha.</p> <p><b>Couching sites and holts</b> – No significant decline.</p> <p><b>Fish biomass available</b> - No significant decline.</p> <p><b>Barriers to connectivity</b> - No significant increase.</p>	
	Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i>	Natural (relatively unmodified) flow regime. Water quality.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat distribution</b> - No decline, subject to natural processes.</p> <p><b>Habitat area</b> - Area stable at 12.6km or increasing, subject to natural processes.</p> <p><b>Hydrological regime: river flow</b> - Maintain appropriate hydrological regimes.</p>	

	Vegetation [3260]		<p><b>Hydrological regime: tidal influence</b> - Maintain natural tidal regime.</p> <p><b>Substratum composition: particle size range</b> - For the tidal sub-type, the substratum of the channel must be dominated by particles of sand to gravel, with silt at the river margins.</p> <p><b>Water quality: nutrients</b> - The concentration of nutrients in the water column must be sufficiently low to prevent changes in species composition or habitat condition.</p> <p><b>Vegetation composition: typical species</b> - Typical species of the relevant habitat sub-type reach favourable status.</p> <p><b>Floodplain connectivity: area</b> - The area of active floodplain at and upstream of the habitat must be maintained.</p>	
	<p>* Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0]</p>	Periodical fluvial inundation.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> - Area stable or increasing, subject to natural processes, at least 18.7ha for sites surveyed.</p> <p><b>Habitat distribution</b> - No decline.</p> <p><b>Woodland size</b> - Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size.</p> <p><b>Woodland structure: cover and height</b> - Diverse structure with a relatively closed canopy containing mature trees; sub-canopy layer with semi-mature trees and shrubs; and well-developed herb layer.</p> <p><b>Woodland structure: community diversity and extent</b> - Maintain diversity and extent of community types.</p> <p><b>Woodland structure: natural regeneration</b> - Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy.</p> <p><b>Hydrological regime: Flooding depth/height of water table</b> - Appropriate hydrological regime necessary for maintenance of alluvial vegetation.</p> <p><b>Woodland structure: dead wood</b> - At least 30m<sup>3</sup>/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder).</p>	

			<p><b>Woodland structure: veteran trees</b> - No decline.</p> <p><b>Woodland structure: indicators of local distinctiveness</b> - No decline.</p> <p><b>Vegetation composition: native tree cover</b> - No decline. Native tree cover not less than 95%.</p> <p><b>Vegetation composition: typical species</b> - A variety of typical native species present, depending on woodland type, including alder (<i>Alnus glutinosa</i>), willows (<i>Salix</i> spp) and, locally, oak (<i>Quercus robur</i>) and ash (<i>Fraxinus excelsior</i>).</p> <p><b>Vegetation composition: negative indicator species</b> - Negative indicator species, particularly non-native invasive species, absent or under control.</p>	
	Mudflats and sandflats not covered by seawater at low tide [1140]	Silt deposits in sheltered estuaries.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes.</p> <p><b>Community distribution</b> – Conserve the following community type in a natural condition: Estuarine muds dominated by polychaetes and crustaceans community complex; and Sand dominated by polychaetes community complex</p>	
<b>Blackwater Bank SAC (002953)</b>	Sandbanks which are slightly covered by sea water all the time [1110]	Coarse sediments. Appropriate water depth. Tidal currents.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes.</p> <p><b>Habitat distribution</b> – the distribution of sandbanks is stable or increasing, subject to natural processes.</p> <p><b>Community distribution</b> – conserve the following community type in a natural condition: Sand with <i>Nephtys cirrosa</i> and <i>Bathyporeia elegans</i> community complex.</p>	Yes
<b>Long Bank SAC (002161)</b>	Sandbanks which are slightly covered by sea water all the time [1110]	Coarse sediments. Appropriate water depth. Tidal currents.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes.</p> <p><b>Habitat distribution</b> – the distribution of sandbanks is stable or increasing, subject to natural processes.</p> <p><b>Community distribution</b> – conserve the following community type in a natural condition: Sand with <i>Nephtys cirrosa</i> and <i>Bathyporeia elegans</i> community complex.</p>	Yes

Raven Point Nature Reserve SAC (000710)	Mudflats and sandflats not covered by seawater at low tide [1140]	Silt deposits in sheltered estuaries.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes.</p> <p><b>Community distribution</b> – the following community types should be maintained in a natural condition: sand dominated by polychaetes community complex; estuarine muds dominated by polychaetes and crustaceans community complex.</p>	Yes
	Annual vegetation of drift lines [1210]	Sandy substrate. Physical impact and nutrient supply from tidal flow.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes, including erosion and succession.</p> <p><b>Habitat distribution</b> - no decline, subject to natural processes.</p> <p><b>Physical structure: functionality and sediment supply</b> – maintain the natural circulation of sediment and organic matter, without any physical obstructions.</p> <p><b>Vegetation structure: zonation</b> – maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.</p> <p><b>Vegetation composition: typical species and sub-communities</b> – maintain the presence of species-poor communities with typical species: sea rocket (<i>Cakile maritima</i>), sea sandwort (<i>Honckenya peploides</i>), prickly saltwort (<i>Salsola kali</i>) and Orache (<i>Atriplex spp.</i>).</p> <p><b>Vegetation composition: negative indicator species</b> – negative indicator species (including non-natives) to represent less than 5% cover.</p>	
	Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) [1330]	Frequency of tidal submergence.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes, including erosion and succession.</p> <p><b>Habitat distribution</b> - no decline, subject to natural processes.</p> <p><b>Physical structure: sediment supply</b> – maintain/restore natural circulation of sediments and organic matter, without any physical obstructions.</p> <p><b>Physical structure: creeks and pans</b> – allow creek and pan structure to develop, subject to natural processes, including erosion and succession.</p>	



			<p><b>Physical structure: flooding regime</b> – maintain natural tidal regime.</p> <p><b>Vegetation structure: zonation</b> - maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.</p> <p><b>Vegetation structure: vegetation height</b> – maintain structural variation within sward.</p> <p><b>Vegetation structure: vegetation cover</b> – maintain &gt;90% of the saltmarsh area vegetated.</p> <p><b>Vegetation composition: typical species and sub-communities</b> – Maintain range of sub-communities with typical species listed in Saltmarsh Monitoring Project (McCorry &amp; Ryle, 2009).</p> <p><b>Vegetation composition: negative indicator species <i>Spartina anglica</i></b> – No significant expansion of common cordgrass (<i>Spartina anglica</i>), with an annual spread of less than 1%.</p>	
	Embryonic shifting dunes [2110]	Dune-building grasses <i>Elytrigia juncea</i> and <i>Leymus arenarius</i> . Supply of windblown sand.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes, including erosion and succession.</p> <p><b>Habitat distribution</b> - no decline, subject to natural processes.</p> <p><b>Physical structure: functionality and sediment supply</b> – maintain the natural circulation of sediment and organic matter, without any physical obstructions.</p> <p><b>Vegetation structure: zonation</b> – maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.</p> <p><b>Vegetation composition: plant health of fore-dune grasses</b> - &gt;95% of sand couch ( <i>Elytrigia juncea</i> ) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present).</p> <p><b>Vegetation composition: typical species and sub-communities</b> – Maintain the presence of species-poor communities with typical species: sand couch (<i>Elytrigia juncea</i>) and/or lyme-grass (<i>Leymus arenarius</i>).</p> <p><b>Vegetation composition: negative indicator species</b> – negative indicator species (including non-natives) to represent less than 5% cover.</p>	

<p>Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]</p>	<p>Supply of wind-blown sand.</p>	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes, including erosion and succession.</p> <p><b>Habitat distribution</b> - no decline, subject to natural processes.</p> <p><b>Physical structure: functionality and sediment supply</b> – maintain the natural circulation of sediment and organic matter, without any physical obstructions.</p> <p><b>Vegetation structure: zonation</b> – maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.</p> <p><b>Vegetation composition: plant health of dune grasses</b> - &gt;95% of marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>) should be healthy (i.e. green plant parts above ground and flowering heads present).</p> <p><b>Vegetation composition: typical species and sub-communities</b> – Maintain the presence of species-poor communities with typical species: marram grass (<i>Ammophila arenaria</i>) and/or lyme-grass (<i>Leymus arenarius</i>).</p> <p><b>Vegetation composition: negative indicator species</b> – negative indicator species (including non-natives) to represent less than 5% cover.</p>
<p>Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]</p>	<p>Low wind, weakly saline conditions in shelter of <i>Ammophila arenaria</i> dunes. Grazing.</p>	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes, including erosion and succession. Total areas mapped 22.65ha.</p> <p><b>Habitat distribution</b> - no decline, subject to natural processes.</p> <p><b>Physical structure: functionality and sediment supply</b> – maintain the natural circulation of sediment and organic matter, without any physical obstructions.</p> <p><b>Vegetation structure: bare ground</b> – bare ground should not exceed 10% of fixed dune habitat, subject to natural processes.</p> <p><b>Vegetation structure: vegetation height</b> – maintain structural variation within sward.</p> <p><b>Vegetation composition: typical species and sub-communities</b> – Maintain range of sub-communities</p>

			<p>with typical species listed in Ryle et al. 2009).</p> <p><b>Vegetation composition: negative indicator species</b> – negative indicator species (including non-natives) to represent less than 5% cover.</p> <p><b>Vegetation composition: scrub/trees</b> – no more than 5% cover or under control.</p>	
<p>Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170]</p>		<p>Humid dune slacks.</p>	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes, including erosion and succession. Total areas mapped 0.14ha.</p> <p><b>Habitat distribution</b> - no decline, subject to natural processes.</p> <p><b>Physical structure: functionality and sediment supply</b> – maintain the natural circulation of sediment and organic matter, without any physical obstructions.</p> <p><b>Vegetation structure: zonation</b> – maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.</p> <p><b>Vegetation structure: bare ground</b> – bare ground should not exceed 10% of cover, subject to natural processes.</p> <p><b>Vegetation structure: vegetation height</b> – maintain structural variation within sward.</p> <p><b>Vegetation composition: typical species and sub-communities</b> – Maintain range of sub-communities with typical species listed in Ryle et al. 2009).</p> <p><b>Vegetation composition: cover and height of <i>S. repens</i></b> – Maintain &gt;10% cover of creeping willow (<i>Salix repens</i>); vegetation height should be in the average range of 5-20cm.</p> <p><b>Vegetation composition: negative indicator species</b> – negative indicator species (including non-natives) to represent less than 5% cover.</p> <p><b>Vegetation composition: scrub/trees</b> – no more than 5% cover or under control.</p>	

	Humid dune slacks [2190]	High water maintained by groundwater and impermeable soils. Grazing. Salinity.	<p><b>Restore</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Habitat area</b> – The permanent habitat area is stable or increasing, subject to natural processes, including erosion and succession. Total areas mapped 0.75ha.</p> <p><b>Habitat distribution</b> - no decline, subject to natural processes.</p> <p><b>Physical structure: functionality and sediment supply</b> – maintain the natural circulation of sediment and organic matter, without any physical obstructions.</p> <p><b>Physical structure: hydrological and flooding regime</b> – maintain natural hydrological regime.</p> <p><b>Vegetation structure: zonation</b> – maintain the range of coastal habitats, including transitional zones, subject to natural processes, including erosion and succession.</p> <p><b>Vegetation structure: bare ground</b> – Bare ground should not exceed 5% of dune slack habitat, with the exception of pioneer slacks, which can have up to 20% bare ground.</p> <p><b>Vegetation structure: vegetation height</b> – maintain structural variation within sward.</p> <p><b>Vegetation composition: typical species and sub-communities</b> – Maintain range of sub-communities with typical species listed in Ryle et al. 2009).</p> <p><b>Vegetation composition: cover of <i>S. repens</i></b> – Maintain &gt;40% cover of creeping willow (<i>Salix repens</i>).</p> <p><b>Vegetation composition: negative indicator species</b> – negative indicator species (including non-natives) to represent less than 5% cover.</p> <p><b>Vegetation composition: scrub/trees</b> – no more than 5% cover or under control.</p>	
The Raven SPA (004019)	Red-throated Diver ( <i>Gavia stellata</i> ) [A001]	Fish availability in shallow inshore/freshwaters. Undisturbed, ice-free marine/freshwater feeding grounds.	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Population trend</b> – Long-term population trend stable or increasing.</p> <p><b>Distribution</b> – There should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation.</p>	
	Cormorant ( <i>Phalacrocorax carbo</i> ) [A017]	Fish availability in shallow inshore/freshwaters. Undisturbed, ice-free marine/freshwater feeding grounds. Nesting sites on rocky		

		cliffs.		
	Grey Plover ( <i>Pluvialis squatarola</i> ) [A141]  Sanderling ( <i>Calidris alba</i> ) [A144]	Food availability (intertidal fauna/pasture). Flooding regime of coastal grasslands. Undisturbed coastal roosting sites close to feeding areas.		
	Wetland and Waterbirds [A999]	Supply of riverine freshwater; Unimpeded tidal flow; Shelter from open coasts; Diverse invertebrate Communities.	<b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:  <b>Wetland habitat area –</b> The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 4,207ha, other than that due to natural patterns of variation.	
<b>Wexford Harbour and Slobbs SPA (004076)</b>	Little Grebe ( <i>Tachybaptus ruficollis</i> ) [A004] Great Crested Grebe ( <i>Podiceps cristatus</i> ) [A005] Grey Heron ( <i>Ardea cinerea</i> ) [A028] Bewick's Swan ( <i>Cygnus columbianus bewickii</i> ) [A037] Whooper Swan ( <i>Cygnus cygnus</i> ) [A038] Wigeon ( <i>Anas penelope</i> ) [A050] Teal ( <i>Anas crecca</i> ) [A052] Mallard ( <i>Anas platyrhynchos</i> ) [A053]	Fish/crustacean/vegetation availability in shallow inshore/freshwaters. Undisturbed, ice-free marine/freshwater feeding grounds.	<b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:  <b>Population trend –</b> Long-term population trend stable or increasing.  <b>Distribution –</b> There should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation.	

<p>Pintail (<i>Anas acuta</i>) [A054]  Scaup (<i>Aythya marila</i>) [A062]  Goldeneye (<i>Bucephala clangula</i>) [A067]  Coot (<i>Fulica atra</i>) [A125]  Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]</p>			
<p>Cormorant (<i>Phalacrocorax carbo</i>) [A017]</p>	<p>Fish availability in shallow inshore/freshwaters. Undisturbed, ice-free marine/freshwater feeding grounds. Nesting sites on rocky cliffs.</p>		
<p>Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]  Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>) [A395]</p>	<p>Food availability (intertidal aquatic vegetation/ pasture/ crops). Undisturbed coastal roosting sites close to feeding sites. Grazing.</p>		
<p>Shelduck (<i>Tadorna tadorna</i>) [A048]</p>	<p>Food availability (intertidal flora and fauna/pasture/cereal). Undisturbed coastal roosting sites close to feeding sites.</p>		
<p>Red-breasted Merganser (<i>Mergus serrator</i>) [A069]</p>	<p>Fish/crustacean prey availability in shallow inshore waters. Undisturbed, ice-free marine/freshwater feeding grounds.</p>		

<p>Oystercatcher (<i>Haematopus ostralegus</i>) [A130] Golden Plover (<i>Pluvialis apricaria</i>) [A140] Grey Plover (<i>Pluvialis squatarola</i>) [A141] Lapwing (<i>Vanellus vanellus</i>) [A142] Knot (<i>Calidris canutus</i>) [A143] Sanderling (<i>Calidris alba</i>) [A144] Dunlin (<i>Calidris alpina</i>) [A149] Black-tailed Godwit (<i>Limosa limosa</i>) [A156] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] Curlew (<i>Numenius arquata</i>) [A160] Redshank (<i>Tringa totanus</i>) [A162] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A179] Lesser Black-backed Gull (<i>Larus fuscus</i>) [A183]</p>	<p>Food availability (intertidal fauna/pasture). Flooding regime of coastal grasslands. Undisturbed coastal roosting sites close to feeding areas.</p>		
<p>Common Scoter (<i>Melanitta nigra</i>) [A065]</p>	<p>Invertebrate prey availability in shallow inshore waters. Undisturbed, ice-free marine/freshwater feeding grounds.</p>		
<p>Hen Harrier (<i>Circus</i>)</p>	<p>Suitable roosting habitat.</p>	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p>	

<p><i>cyaneus</i>) [A082]</p>	<p>Suitable foraging habitat (wetlands, scrub, tillage, hedgerows). Prey availability (birds and mammals).</p>	<p><b>Roost attendance: individual hen harriers</b> – No significant decline.</p> <p><b>Suitable foraging habitat</b> – no significant decline.</p> <p><b>Roost Site Condition</b> – The roost site should be maintained in a suitable condition.</p> <p><b>Disturbance at the roost site</b> – Human activities should occur at levels that do not adversely affect the Hen Harrier winter roost population.</p>	
<p>Little Tern (<i>Sterna albifrons</i>) [A195]</p>	<p>Sheltered coastal environment or sandy beach. Fish/invertebrate prey availability in shallow inshore waters. Undisturbed, ice-free marine/freshwater feeding grounds.</p>	<p><b>Maintain</b> favourable conservation condition, defined by the following attributes and targets:</p> <p><b>Breeding population abundance: apparently occupied nests (AONs)</b> – No significant decline.</p> <p><b>Productivity rate: fledged young per breeding pair</b> - No significant decline.</p> <p><b>Distribution: breeding colonies</b> - No significant decline.</p> <p><b>Prey biomass available</b> – No significant decline.</p> <p><b>Barriers to connectivity</b> – No significant increase.</p> <p><b>Disturbance at the breeding site</b> – Human activities should occur at levels that do not adversely affect the breeding little tern population.</p>	
<p>Wetland and Waterbirds [A999]</p>	<p>Supply of riverine freshwater; Unimpeded tidal flow; Shelter from open coasts; Diverse invertebrate Communities.</p>	<p><b>Maintain</b> favourable conservation condition, defined by the following attribute and target:</p> <p><b>Wetland Habitat area</b> - the permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 4,241ha, other than that due to natural patterns of variation.</p>	



## GLOSSARY OF TERMS

<b>Annual Exceedance Probability Or AEP</b>	The probability, typically expressed as a percentage, of a flood event of a given magnitude being equalled or exceeded in any given year. For example, a 1% AEP flood event has a 1%, or 1 in a 100, chance of occurring or being exceeded in any given year.
<b>Appropriate Assessment</b>	An assessment of the effects of a plan or project on Natura 2000 sites (European Sites). European Sites comprise Special Protection Areas under the Birds Directive and Special Areas of Conservation under the Habitats Directive.
<b>Area for Further Assessment or AFA</b>	Areas where, based on the Preliminary Flood Risk Assessment, the risks associated with flooding are considered to be potentially significant. For these areas further, more detailed assessment is required to determine the degree of flood risk, and develop measures to manage and reduce the flood risk. The AFAs are the focus of the CFRAM Studies.
<b>Arterial Drainage Scheme</b>	Works undertaken under the Arterial Drainage Act (1945) to improve the drainage of land. Such works were undertaken, and are maintained on an ongoing basis, by the OPW.
<b>Biodiversity</b>	Word commonly used for biological diversity and defined as assemblage of living organisms from all habitats including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part.
<b>Birds Directive</b>	European Union Council Directive 2009/147/EC - codified version of Directive 79/409/EEC on the Conservation of Wild Birds, as amended
<b>Catchment</b>	The area of land draining to a particular point on a river or drainage system, such as an Area for Further Assessment (AFA) or the outfall of a river to the sea.
<b>Catchment Flood Risk Assessment and Management Study Or CFRAM Study</b>	A study to assess and map the flood hazard and risk, both existing and potential future, from fluvial and coastal waters, and to define objectives for the management of the identified risks and prepare a Plan setting out a prioritised set of measures aimed at meeting the defined objectives.
<b>Consequences</b>	The impacts of flooding, which may be direct (e.g., physical injury or damage to a property or monument), a disruption (e.g., loss of electricity supply or blockage of a road) or indirect (e.g., stress for affected people or loss of business for affected commerce)
<b>Drainage</b>	Works to remove or facilitate the removal of surface or sub-surface water, e.g., from roads and urban areas through urban storm-water drainage systems, or from land through drainage channels or watercourses that have been deepened or increased in capacity.
<b>Drainage District</b>	Works across a specified area undertaken under the Drainage Acts to facilitate land drainage.
<b>Estuary</b>	A semi-enclosed coastal body of water with one or more rivers or streams flowing into it, and with an open connection to the sea.
<b>Flood</b>	The temporary covering by water of land that is not normally covered by water.

<b>'Floods' Directive</b>		The European Union 'Floods' Directive [2007/60/EC] is the Directive that came into force in November 2007 requiring Member States to undertake a PFRA to identify Areas for Further Assessment (AFAs), and then to prepare flood maps and Plans for these areas.
<b>Flood Extent</b>		The extent of land that has been, or might be, flooded. Flood extent is often represented on a flood map.
<b>Flood Risk</b>		Refers to the potential adverse consequences resulting from a flood hazard. The level of flood risk is the product of the frequency or likelihood of flood events and their consequences (such as loss, damage, harm, distress and disruption).
<b>Flood Management Method</b>	<b>Risk</b>	Structural and non-structural interventions that modify flooding and flood risk either through changing the frequency of flooding, or by changing the extent and consequences of flooding, or by reducing the vulnerability of those exposed to flood risks.
<b>Flood Management Option</b>	<b>Risk</b>	Can be either a single flood risk management method in isolation or a combination of more than one method to manage flood risk.
<b>Flood Management (Plan)</b>	<b>Risk Plan</b>	A Plan setting out a prioritised set of measures within a long-term sustainable strategy aimed at achieving defined flood risk management objectives. The Plan is developed at a River Basin (Unit of Management) scale, but is focused on managing risk within the AFAs.
<b>Floodplain</b>		The area of land adjacent to a river or coastal reach that is prone to periodic flooding from that river or the sea.
<b>Fluvial</b>		Riverine, often used in the context of fluvial flooding, i.e., flooding from rivers, streams, etc.
<b>Groundwater</b>		All water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil. This zone is commonly referred to as an aquifer which is a subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow a significant flow of groundwater or the abstraction of significant quantities of groundwater.
<b>Habitats Directive</b>		The Habitats Directive [92/43/EEC] on the Conservation of Natural Habitats and of Wild Flora and Fauna aims at securing biodiversity through the provision of protection for animal and plant species and habitat types deemed to be of European conservation importance.
<b>Hazard</b>		Something that can cause harm or detrimental consequences. In this context, the hazard referred to is flooding.
<b>Hydraulics</b>		The science of the behaviour of fluids, often used in this context in relation to estimating the conveyance of flood water in river channels or structures (such as culverts) or overland to determine flood levels or extents.
<b>Hydrology</b>		The science of the natural water cycle, often used in this context in relation to estimating the rate and volume of rainfall flowing off the land and of flood flows in rivers.

<b>Hydrometric Area</b>		Hydrological divisions of land, generally large catchments or a conglomeration of small catchments, and associated coastal areas. There are 40 Hydrometric Areas in the island of Ireland.
<b>Hydromorphology</b>		The physical characteristics of the shape, boundaries and content of a water body. For rivers, this includes river depth and width variation, structure and substrate of the river bed and structure of the riparian zone. For lakes it includes lake depth variation, quantity, structure & substrate of the lake bed and structure of the lake shore.
<b>Individual Receptor Or IRR</b>	<b>Risk</b>	A single receptor (see below) that has been determined to represent a potentially significant flood risk (as opposed to a community or other area at potentially significant flood risk AFA).
<b>Inundation</b>		Another word for flooding or a flood (see 'Flood')
<b>Measure</b>		A measure (when used in the context of a flood risk management measure) is a set of works, structural and / or non-structural, aimed at reducing or managing flood risk.
<b>Mitigation Measures</b>		Measures to avoid/prevent, minimise/reduce, or as fully as possible, offset/compensate for any significant adverse effects on the environment, as a result of implementing a plan or project.
<b>Morphology Morphological</b>	/	See 'hydromorphology' above.
<b>National Programme</b>	<b>CFRAM</b>	The programme developed by the OPW to implement key aspects of the EU 'Floods' Directive in Ireland, which includes the CFRAM Studies, and builds on the findings of the PFRA.
<b>Natura 2000</b>		European network of protected sites ('European sites') which represent areas of the highest value for natural habitats and species of plants and animals which are rare, endangered or vulnerable in the European Community. The Natura 2000 network includes two types of area: Special Areas of Conservation (SAC) where they support rare, endangered or vulnerable natural habitats and species of plants or animals (other than birds) and Special Protection Areas (SPA) where areas support significant numbers of wild birds and their habitats. SACs are designated under the Habitats Directive and SPAs are classified under the Birds Directive. Certain sites may be designated as both SAC and SPA.
<b>Natural Area</b>	<b>Heritage</b>	An area of national nature conservation importance, designated under the Wildlife Act 1976 (as amended), for the protection of features of high biological or earth heritage value or for its diversity of natural attributes.
<b>Non Options</b>	<b>Structural</b>	Include flood forecasting and development control to reduce the vulnerability of those currently exposed to flood risks and limit the potential for future flood risks.
<b>Pluvial</b>		Refers to rainfall, often used in the context of pluvial flooding, i.e., flooding caused directly from heavy rainfall events (rather than overflowing rivers).
<b>Preliminary Risk Assessment Or PFRA</b>	<b>Flood</b>	An initial, high-level screening of flood risk at the national level to determine where the risks associated with flooding are potentially significant, to identify the AFAs. The PFRA is the first step required under the EU 'Floods' Directive.

<b>Ramsar Site</b>	Wetland site of international importance designated under the Ramsar Convention on Wetlands of International Importance 1971, primarily because of its importance for waterfowl. All Ramsar sites hold the European designation of SAC or SPA (or both).
<b>Receptor</b>	Something that might suffer harm or damage as a result of a flood, such as a house, office, monument, hospital, agricultural land or environmentally designated sites.
<b>Return Period</b>	A term that was used to describe the probability of a flood event, expressed as the interval in the number of years that, on average over a long period of time, a certain magnitude of flood would be expected to occur. This term has been replaced by 'Annual Exceedance Probability, as Return Period can be misleading.
<b>Riparian</b>	River bank. Often used to describe the area on or near a river bank that supports certain vegetation suited to that environment (Riparian Zone).
<b>Risk</b>	The combination of the probability of flooding, and the consequences of a flood.
<b>River Basin</b>	An area of land (catchment) draining to a particular estuary or reach of coastline.
<b>River Basin District Or RBD</b>	A hydrological division of land defined for the purposes of the Water Framework Directive. There are eight RBDs in the island of Ireland; each comprising a group of River Basins.
<b>Riverine</b>	Related to a river.
<b>Runoff</b>	The flow of water over or through the land to a waterbody (e.g., stream, river or lake) resulting from rainfall events. This may be overland, or through the soil where water infiltrates into the ground.
<b>Screening [or Test of Likely Significance]</b>	The process which identifies the likely impacts upon a European site [Natura 2000 site] of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant.
<b>SEA Directive</b>	European Directive 2001/42/EC on the Assessment of the Effects of certain Plans and Programmes on the Environment – 'Strategic Environmental Assessment'.
<b>Sedimentation</b>	The accumulation of particles (of soil, sand, clay, peat, etc.) in the river channel.
<b>Significant Risk</b>	Flood risk that is of particular concern nationally. The PFRA Main Report (see <a href="http://www.cfram.ie">www.cfram.ie</a> ) sets out how significant risk is determined for the PFRA, and hence how Areas for Further Assessment have been identified.
<b>Spatial Scale(s) of Assessment</b>	Defines the spatial scale at which flood risk management options are assessed. Assessment Units are defined on four spatial scales ranging in size from largest to smallest as follows: catchment scale, Assessment Unit (AU) scale, Areas for Further Assessment (APSR) and Individual Risk Receptors (IRR).
<b>Special Area of Conservation</b>	A Special Area of Conservation (SAC) is an internationally important site, protected for its habitats and non-bird species. It is designated, as required, under the EC Habitats Directive. A candidate SAC (cSAC) is a

candidate site, but is afforded the same status as if it were confirmed.

<b>Special Protection Area</b>	A Special Protection Area (SPA) is a site of international importance for breeding, feeding and roosting habitat for bird species. It is designated, as required, under the EC Birds Directive.
<b>Standard of Protection Or SoP</b>	The magnitude of flood, often defined by the annual probability of that flood occurring being exceeded (the Annual Exceedance Probability, or 'AEP'), that a measure / works is designed to protect the area at risk against.
<b>Strategic Environmental Assessment Or SEA</b>	A SEA is an environmental assessment of plans (such as the Plans) and programmes to ensure a high level consideration of environmental issues in the plan preparation and adoption, and is a requirement provided for under the SEA directive [2001/42/EC]
<b>Structural Options</b>	Involve the application of physical flood defence measures, such as flood walls and embankments, which modify flooding and flood risk either through changing the frequency of flooding, or by changing the extent and consequences of flooding.
<b>Surface Water</b>	Water on the surface of the land. Often used to refer to ponding of rainfall unable to drain away or infiltrate into the soil.
<b>Surge</b>	The phenomenon of high sea levels due to meteorological conditions, such as low pressure or high winds, as opposed to the normal tidal cycles
<b>Sustainability</b>	The capacity to endure. Often used in an environmental context or in relation to climate change, but with reference to actions people and society may take.
<b>Tidal</b>	Related to the tides of the sea / oceans, often used in the context of tidal flooding, i.e., flooding caused from high sea or estuarine levels.
<b>Topography</b>	The shape of the land, e.g., where land rises or is flat.
<b>Transitional Water</b>	The estuarine or inter-tidal reach of a river, where the water is influenced by both freshwater river flow and saltwater from the sea.
<b>Unit of Management Or UoM</b>	A hydrological division of land defined for the purposes of the Floods Directive. One Plan will be prepared for each Unit of Management, which is referred to within the Plan as a River Basin.
<b>Vulnerability</b>	The potential degree of damage to a receptor (see above), and the degree of consequences that would arise from such damage.
<b>Water Framework Directive Or WFD</b>	The Water Framework Directive [2000/60/EC] aims to protect surface, transitional, coastal and ground waters to protect and enhance the aquatic environment and ecosystems and promote sustainable use of water resources
<b>Waterbody</b>	A term used in the Water Framework Directive (see below) to describe discrete section of rivers, lakes, estuaries, the sea, groundwater and other bodies of water.
<b>Watercourse</b>	Any flowing body of water including rivers, streams, drains, ditches etc.

**Zone of Influence**

The area over which ecological features may be subject to significant effects as a result of the proposed Plan and associated activities. This may extend beyond the Plan area, for example where there are ecological or hydrological links beyond the Plan boundary. The zone of influence may vary for different ecological features depending on their sensitivity to an environmental change.



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