Comhshaol, Oidhreacht agus Rialtas Áitiúil
**Environment, Heritage and Local Government**

# Freshwater Pearl Mussel

## Sub-Basin Management Plans

## SEA Scoping Document

November 2009

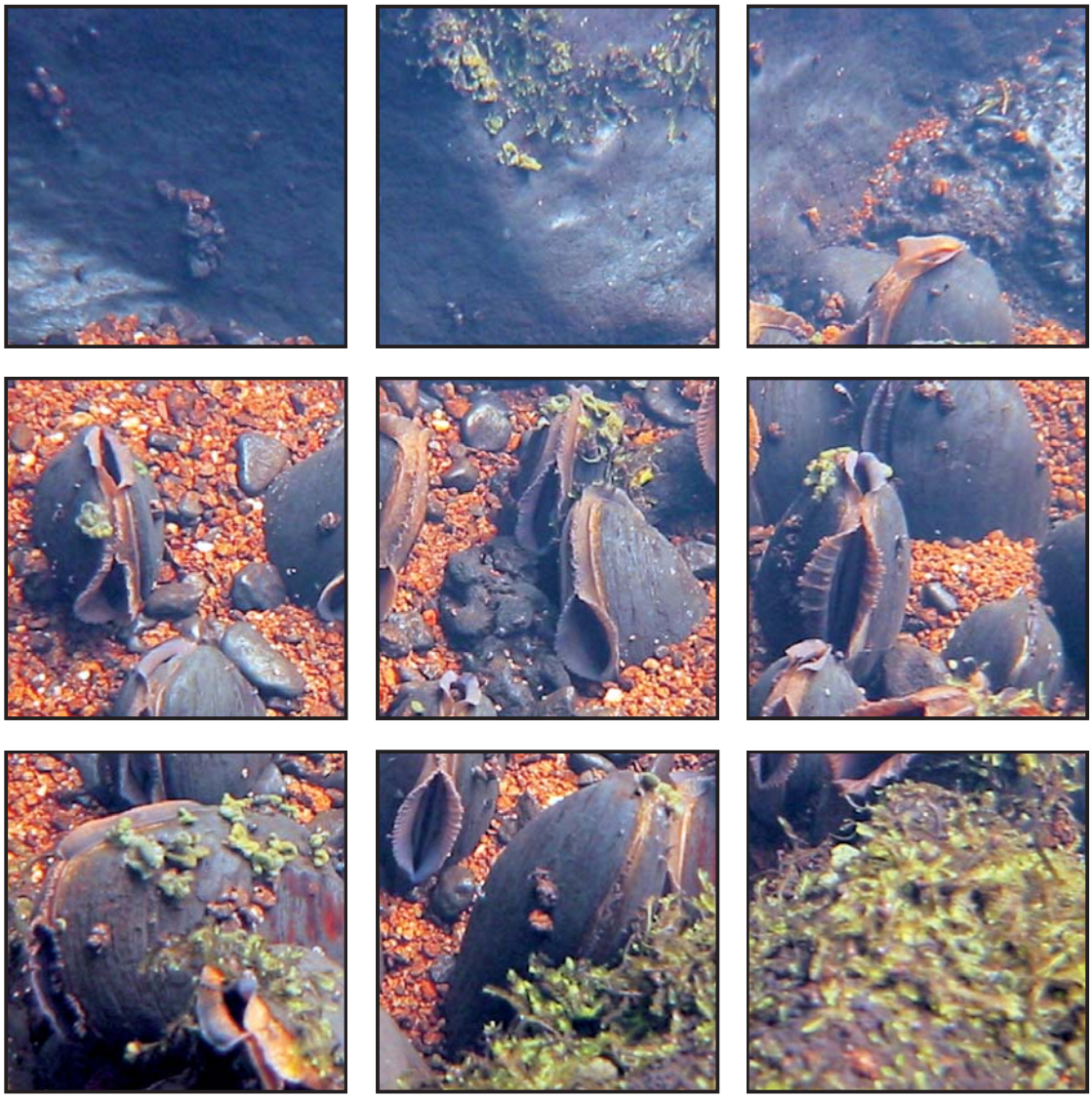

Photo courtesy of Eugene Ross – Tralee IT

# SEA for Freshwater Pearl Mussel Sub-Basin Management Plans

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# 1 INTRODUCTION

## 1.1 STATUS OF FRESHWATER PEARL MUSSEL IN IRELAND

Freshwater Pearl Mussels (FPM) are widespread in Ireland, particularly in the South West, West and North West of the country. There are 96 populations of pearl mussels in the Republic of Ireland and a total of 27 populations have been designated within 19 Special Areas of Conservation (SAC) (**Figure 1, Table 1**). None of the 96 populations in the country is considered to be in favourable conservation status as reproduction and juvenile survival does not match adult mortality rates and numbers are declining annually.

Many of the non-designated rivers contain very small populations of 5,000 or less, and although some of these are still internationally important compared with the remaining populations of other countries, the most important Irish populations, and the ones of most international concern are those with populations between 500,000 and 3,000,000. These are populations within catchments that were near pristine up until very recent times, but have declined within the lifetime of their designation as SACs, although much of the decline may have been the result of activities occurring before designation.

Recent declines have been due to a number of issues, which have combined to lower the quality of the river water and river bed habitat. The purpose of these sub-basin management plans is to address the catchment-wide issues that are contributing to this decline and to develop a strategy for implementing measures that will bring the catchments and thus the populations back to favourable condition.

The National Technical Co-ordination Group (NTCG) for the Water Framework Directive (WFD) established a subcommittee, the National Conservation Working Group (NCWG), to work on the development of nature conservation aspects of the WFD. The NCWG is chaired by the National Parks and Wildlife Service (NPWS) of the Department of Environment, Heritage and Local Government (DEHLG), who have statutory responsibility for nature conservation in Ireland.

The initial task of the NCWG is to refine and further develop a national set (“toolkit”) of standard catchment measures for freshwater pearl mussels that are practical, functional and cost effective. The objective is to ensure that the water needs of the two endangered species of freshwater pearl mussel, *Margaritifera margaritifera and Margaritifera durrovensis* can be met while minimising disruption to other land uses in the catchments.

**Table 1: List of the 27 Sub-basin Catchments Designated as SAC for Freshwater Pearl Mussel Populations**

| | Freshwater pearl mussel population[1] | SAC Site Code | SAC Site Name | Rivers and lakes containing *Margaritifera* (list not exhaustive) |
|---|---|---|---|---|
| 1 | Bandon | 002171 | Bandon River cSAC | Bandon & Caha |
| 2 | Aughavaud (Barrow) | 002162 | River Barrow and River Nore cSAC | Aughavaud |
| 3 | Ballymurphy (Barrow) | 002162 | River Barrow and River Nore cSAC | Ballymurphy |
| 4 | Mountain (Barrow) | 002162 | River Barrow and River Nore cSAC | Mountain, Aughnabrisky |
| 5 | Bundorragha | 001932 | Mweelrea/ Shreefry/ Erriff Complex cSAC | Bundorragha |
| 6 | Caragh | 000365 | Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment cSAC | Caragh, Owenroe, Meelagh, Caraghbeg, Glashawee, Lough Beg Stream, Lough Acoose, Cloon Lough |
| 7 | Clady | 000140 | Fawnboy Bog/ Lough Nacung cSAC | Clady |
| 8 | Owenriff (Corrib) | 000297 | Lough Corrib cSAC | Owenriff, Glengawbeg |
| 9 | Currane | 000365 | Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment cSAC | Capall, Cummeragh |
| 10 | Dawros | 002031 | The Twelve Bens/ Garraun Complex cSAC | Dawros |
| 11 | Eske | 000163 | Lough Eske and Ardnamona Wood cSAC | Eske |
| 12 | Kerry Blackwater | 002173 000365 | Blackwater River (Kerry) cSAC & Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment cSAC | Blackwater, Kealduff, Derreendarragh |
| 13 | Gearhameen (Laune) | 000365 | Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment cSAC | Gearhameen & Owenreagh |
| 14 | Glaskeelan (Leannan) | 002047 | Cloghernagore Bog and Glenveagh National Park cSAC | Glaskeelan |
| 15 | Leannan | 002176 | Leannan River cSAC | Leannan |

[1] Population named after river of highest stream-order that contains mussels

| | Freshwater pearl mussel population[1] | SAC Site Code | SAC Site Name | Rivers and lakes containing *Margaritifera* (list not exhaustive) |
|---|---|---|---|---|
| 16 | Allow (Munster Blackwater) | 002170 | Blackwater River (Cork/Waterford) cSAC | Allow |
| 17 | Licky | 002170 | Blackwater River (Cork/Waterford) cSAC | Licky |
| 18 | Munster Blackwater | 002170 | Blackwater River (Cork/Waterford) cSAC | Munster Blackwater (main channel) |
| 19 | Newport | 002144 | Newport River cSAC | Newport |
| 20 | Nore | 002162 | River Barrow and River Nore cSAC | Nore |
| 21 | Owencarrow | 002047 | Cloghernagore Bog and Glenveagh National Park cSAC | Owencarrow |
| 22 | Owenea | 000197 | West of Ardara/Maas Road cSAC | Owenea |
| 23 | Owenmore | 000375 | Mount Brandon cSAC | Owenmore |
| 24 | Ownagappul | 001879 | Glanmore Bog cSAC | Ownagappul & Barrees |
| 25 | Cloon (Shannon Estuary) | 002165 | Lower River Shannon cSAC | Cloon |
| 26 | Derreen (Slaney) | 000781 | Slaney River Valley cSAC | Derreen |
| 27 | Clodiagh (Suir) | 002137 | Lower River Suir cSAC | Clodiagh |

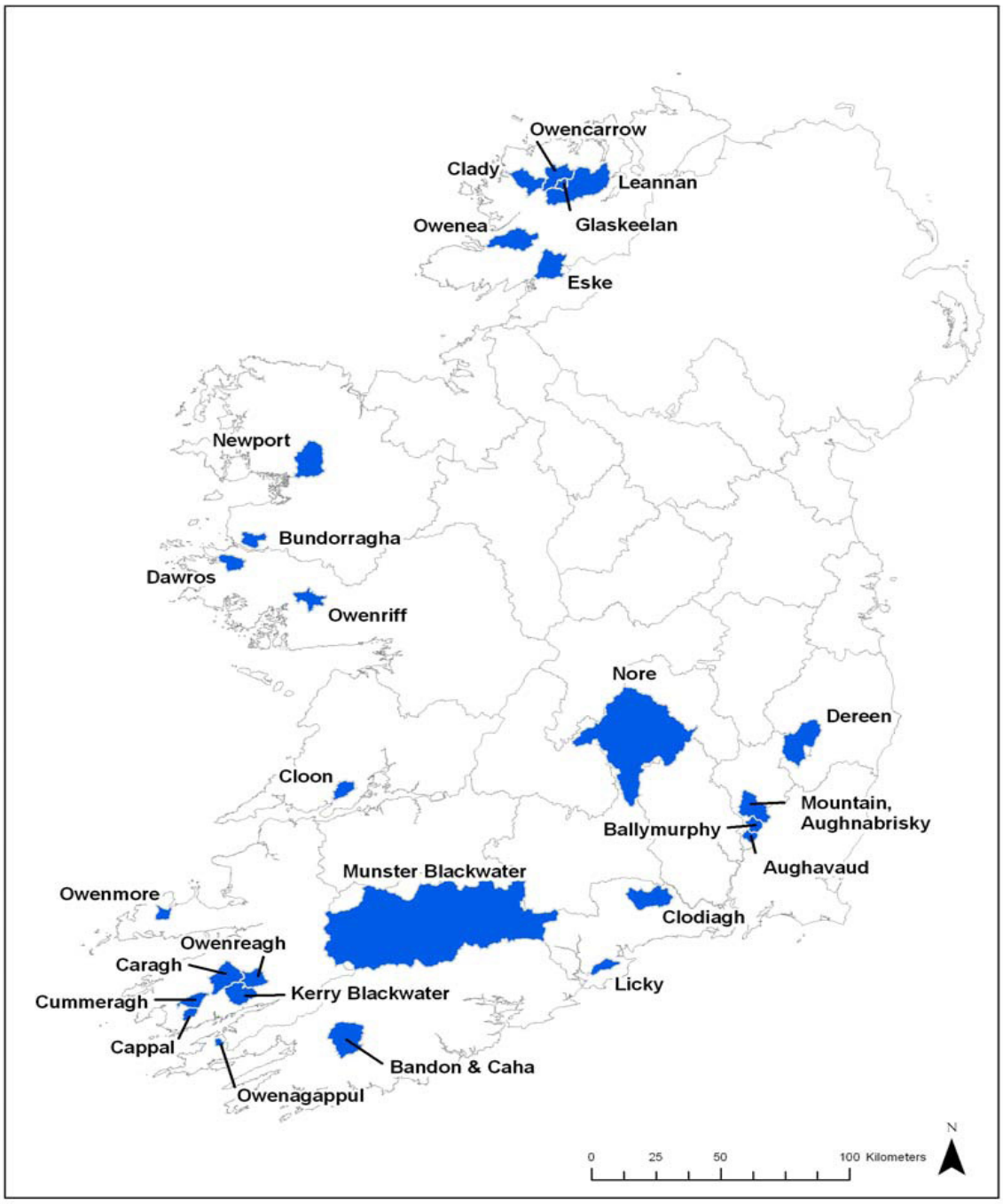


**Figure 1 Map of the Catchments of the Specified Pearl Mussel Populations**

## 1.2 LEGISLATIVE CONTEXT OF THE PLAN

### 1.2.1 Water Framework Directive

The Water Framework Directive (WFD) (2000/60/EC) came into force in December 2000 and establishes a framework for community action in the field of water policy and for the protection of inland surface waters, transitional waters, coastal waters and groundwater. The WFD rationalises and updates existing legislation and provides for water management on the basis of River Basin Districts (RBDs). The WFD was transposed into law in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003). The purpose of the WFD is to maintain the "high status" of waters where it exists, prevent deterioration in existing status of waters and to achieve at least *"*good status*"* in relation to all waters by 2015. The mechanism by which this is to be achieved under the WFD is through the adoption and implementation of River Basin Management Plans (RBMPs) and Programmes of Measures (POMs) for each of the identified RBDs.

In accordance with the requirements of the WFD the EPA has compiled a Register of Protected Areas. The protected areas are those identified as requiring special protection under existing national or European legislation, either to protect their surface water or groundwater, or to conserve habitats or species that directly depend on those waters. The register consists of an inventory of protected area sites representing a number of protected area categories including: *Areas Designated for the Protection of Habitats or Species*. These include areas designated under the Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC).

One of the WFD's core environmental objectives relates to these protected areas. The Directive requires all such areas to achieve compliance with standards and objectives by 2015. Ireland's SAC, established under the EU Habitats Directive, are part of the WFD Register of Protected areas and are therefore directly linked to this objective.

The WFD requires that a programme of measures is established in order to achieve its environmental objectives. The programme shall include "basic measures" which include those measures required to implement Community legislation for the protection of water including measures specified under 11 named Directives, one of which is the Habitats Directive. The programme of measures is to be established by 22 December 2009 and made operational by 22 December 2012 at the latest. Consequently, the FPM Sub-Basin Management Plans and environmental objectives established for those pearl mussel populations designated under the Habitats Directive are also part of the WFD river basin programme of measures. They form part of the basic measures and the objectives for these protected areas must be achieved by 2015.

### 1.2.2 EU Habitats Directive and Natura 2000 Network

The Water Framework Directive has obvious synergies and linkages with other EU directives, most notably the Birds (79/409/EEC) and Habitats (92/43/EC) Directives. The WFD contains both direct and indirect references to these two directives in particular. The following summarises the main legislative links from the WFD:

| **Article or Annex Reference in WFD** | **Relevance to (79/409/EEC) and Habitats (92/43/EC) Directives** |
|---|---|
| Article 4(1) (c) | *Protected Area Objectives*<br><br>Member States shall achieve compliance with any standards and objectives at the latest 15 years after the date of entry into force of this Directive, unless otherwise specified in the Community legislation under which the individual protected areas have been established. |
| Article 4(2) | Where more than one of the objectives under paragraph 1 relates to a given body of water, the most stringent shall apply. |
| Article 4(8) | When applying paragraphs 3, 4, 5, 6 and 7, a Member State shall ensure that the application does not permanently exclude or compromise the achievement of the objectives of this Directive in other bodies of water within the same river basin district and is consistent with the implementation of other Community environmental legislation. |
| Article 6 | *Register of Protected Areas*<br><br>Member States shall ensure the establishment of a register or registers of all areas lying within each river basin district which have been designated as requiring special protection under specific Community legislation for the protection of their surface water and groundwater or for the conservation of habitats and species directly depending on water. They shall ensure that the register is completed at the latest four years after the date of entry into force of this Directive. |
| Annex IV | The register of protected areas required under Article 6 shall include the following types of protected areas:<br><br>(v) areas designated for the protection of habitats or species where the maintenance or improvement of the status |

| Article or Annex Reference in WFD | Relevance to (79/409/EEC) and Habitats (92/43/EC) Directives |
|---|---|
| | of water is an important factor in their protection, including relevant Natura 2000 sites designated under Directive 92/43/EEC (1) and Directive 79/409/EEC (2). |
| Article 8 | *Monitoring of surface water status, groundwater status and protected areas*<br><br>Member States shall ensure the establishment of programmes for the monitoring of water status in order to establish a coherent and comprehensive overview of water status within each river basin district: |
| Annex V 1..3.5 | *Monitoring of ecological status and chemical status for surface waters*<br><br>1.3.5 Additional monitoring requirements for protected areas. |

While it is likely that these links will compliment the Birds and Habitats Directives by improving the status of the designated sites, it is also recognised that there is still a need to consider the various elements and proposals coming from the WFD for Appropriate Assessment on a case by case basis to ensure potential indirect negative impacts are not overlooked (WAPPA, 2007[2]).

### 1.2.3 European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009

In 2009, national legislation was developed to support the achievement of favourable conservation status for FPM: The European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009. That legislation sets environmental quality objectives for FPM habitat, requires the production of sub-basin plans with programmes of measures to achieve these objectives and sets out the responsibilities of the public authorities in respect of implementing the sub-basin plans and associated measures. The legislation requires that the sub-basin plans include the following;

a) Specific objectives and targets, in accordance with Regulation 2 and the Third and Fourth Schedules, and deadlines for their achievement;

b) The investigation of sources of pressures leading to the unfavourable conservation status of the pearl mussel;

[2] The Water Framework Directive, Assessment, Participation and Protected Areas: What are the Relationships? (WAPPA) EPA, 2007.

c) The establishment of a programme, including a timeframe, for the reduction of pressures giving rise to unfavourable conservation status. The programme shall include pressure reduction targets and deadlines, either in relation to individual pollutants or to particular sectors or activities or both, to be implemented within the sub-basin, or parts of the sub-basin as appropriate;

d) A detailed programme of monitoring to be implemented within the sub-basin, or parts of the sub-basin as appropriate, in order to evaluate the effectiveness of measures and progress made towards restoring favourable conservation status.

### 1.2.4 Strategic Environmental Assessment Directive

Strategic Environmental Assessment (SEA) is a process for evaluating, at the earliest appropriate stage, the environmental quality and consequences of Policy, Plan or Programme initiatives by statutory bodies. The purpose is to ensure that the environmental consequences of plans and programmes are assessed both during their preparation and prior to adoption. The SEA process also gives interested parties an opportunity to comment on the environmental impacts of the proposed plan or programme and to be kept informed during the decision making process.

The European Directive (2001/42/EC) on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive), was transposed into national legislation in Ireland by the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 (S.I. 435/2004) and the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436/2004).

The SEA Directive requires that certain Plans and Programmes, prepared by statutory bodies, which are likely to have a significant impact on the environment, be subject to the SEA process. The SEA process is comprised of the following steps:

- **Screening:** Decision on whether or not an SEA of a Plan/Programme is required.
- **Scoping:** Consultation with the defined statutory bodies on the scope and level of detail to be considered in the assessment.
- **Environmental Assessment:** An assessment of the likely significant impacts on the environment as a result of the Plan or Programme.

  Publication of an Environmental Report.
- **Consultation:** Consultation on the draft Plan/Programme and associated Environmental

Report

Evaluation of the submissions and observations made on the draft Plan/Programme and Environmental Report.

- **SEA Statement:** Issuance of an SEA Statement identifying how environmental considerations and consultation have been integrated into the Final Plan/Programme.

**Figure 2** shows the key steps required to complete the statutory SEA process in accordance with the relevant national legislation.

#### 1.2.4.1 Requirement for a SEA

Article 3(2) of the SEA Directive requires SEA for plans and programmes:

a) which are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, **water management**, telecommunications, tourism, town and county planning or land use and which set the framework for future development consent for projects listed in Annexes I or II of the Environmental Impact Assessment (EIA) Directive (85/337/EEC); or
b) which, in view of the likely effect on protected sites, have been determined to require an assessment pursuant to Article 6 or 7 of the Habitats Directive (92/43/EEC).

**Scoping**

Under Article 6 of the SEA Directive, the competent authority preparing the plan or programme is required to consult with specific "environmental authorities" (statutory consultees) on the scope and level of detail of the information to be included in the Environmental Report. The competent authority in relation to the Freshwater Pearl Mussel Sub-Basin Plans is the National Parks and Wildlife Service (NPWS) of the Department of the Environment, Heritage and Local Government. The statutory consultees for SEA are established within the national legislation as being:

- Environmental Protection agency
- Department of the Environment, Heritage and Local Government
- Department of Communications, Energy and Natural Resources (DCENR) (formerly Department of Communications Marine and Natural Resources (DCMNR))

The main objective of scoping is to identify key issues of concern that should be addressed in the assessment of the Plan and the appropriate level of detail to which they should be considered. The scoping exercise should answer the following questions:

- What are the relevant significant issues to be addressed by the SEA?
- Against what environmental objectives should the potential options be evaluated?

The steps involved in the scoping process are outlined in **Figure 3**.

While the issuance of a Scoping Document is not a formal requirement of the SEA Regulations, it is recommended as good practice. A Scoping Document can inform stakeholders about the key environmental issues and the key elements of the Plan/Programme (P/P). In addition, the Scoping Document can be used as a tool to generate comments from stakeholders on the scope and approach of the SEA.

This document has been compiled as part of the scoping stage of the SEA for the Freshwater Pearl Mussel Sub-Basin Management Plans. This Scoping Document has been compiled on behalf of the NPWS.

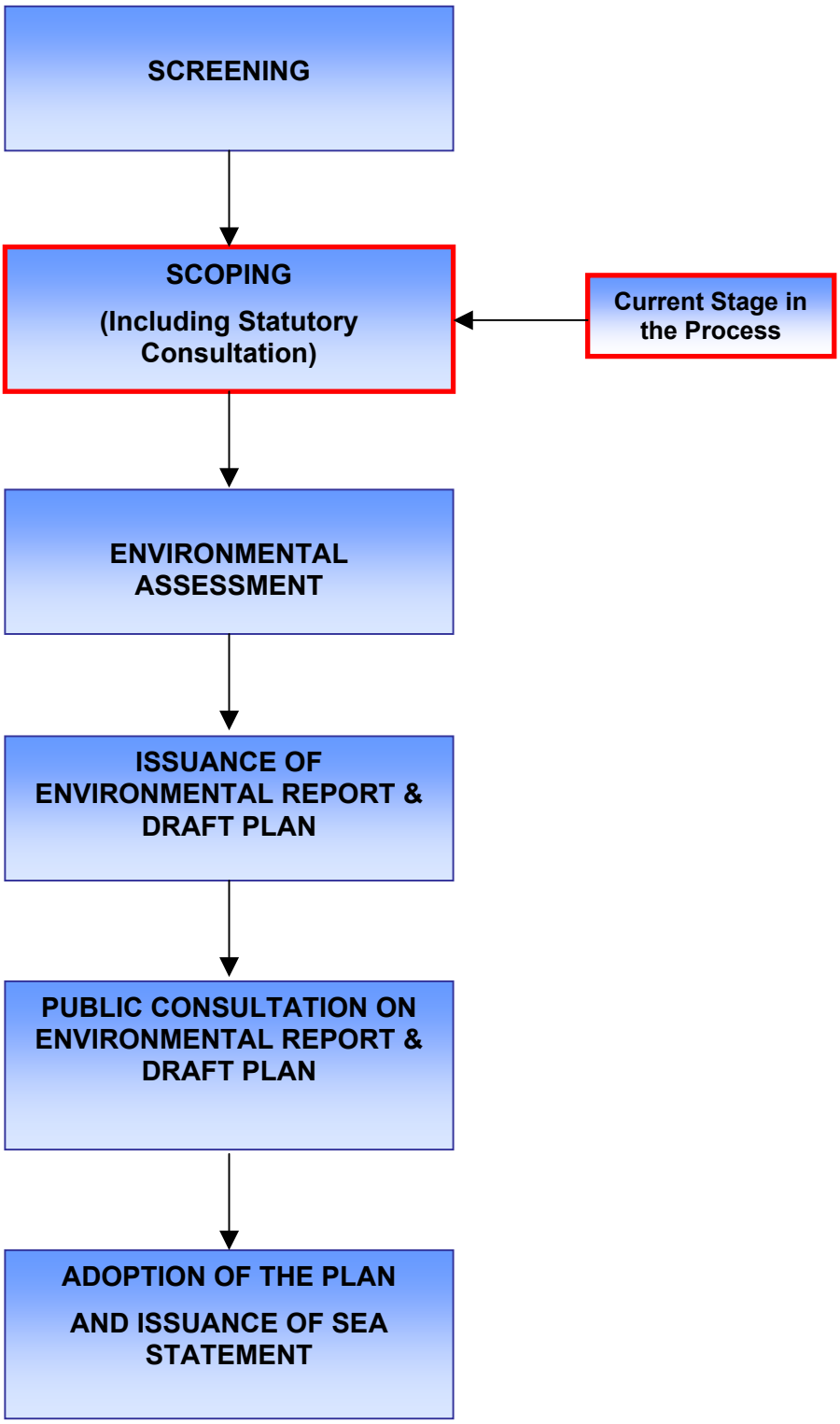


**Figure 2 Overview of SEA Process**

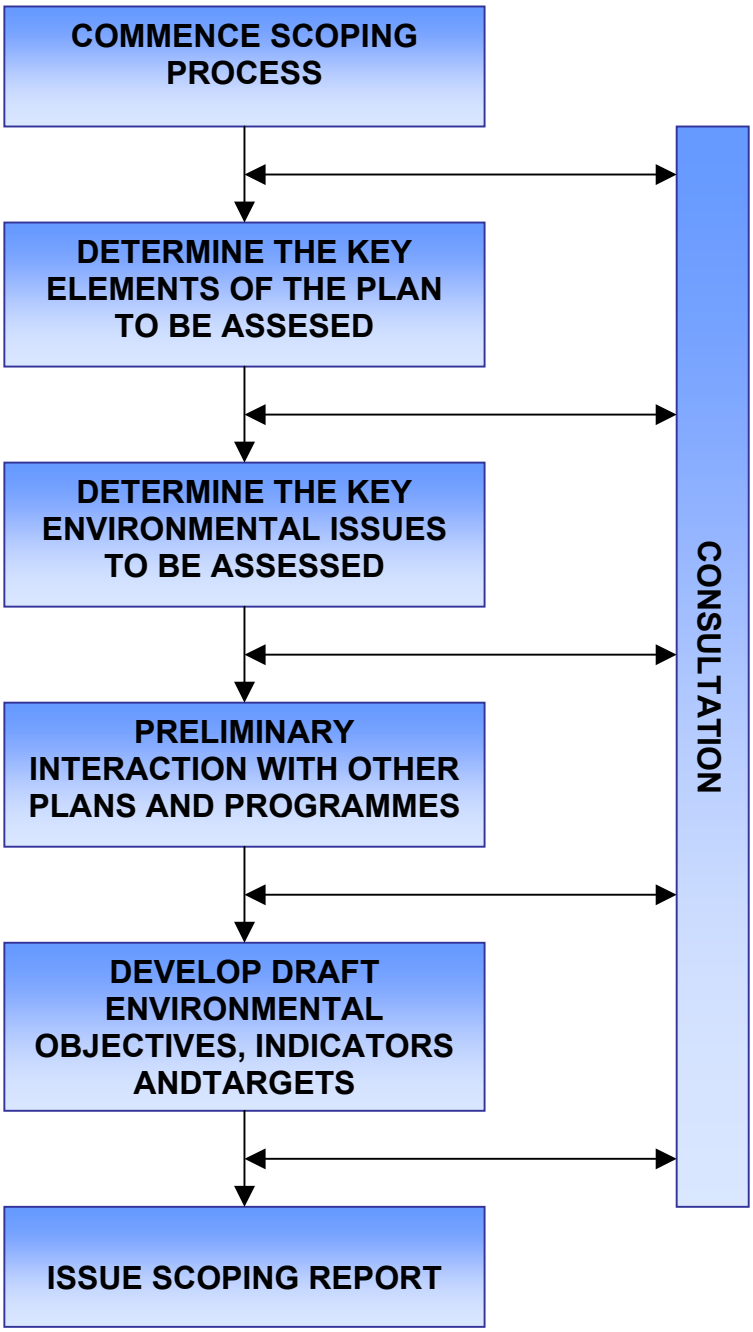


**Figure 3 Steps Involved in Scoping Process**

**SEA Guidance**

The Environmental Report will contain the findings of the assessment of the likely significant effects on the environment resulting from implementation of the proposed Freshwater Pearl Mussel Sub-Basin Management Plans. It will reflect the requirements of the SEA Directive (2001/42/EC) on the assessment of the effects of certain plans and programmes on the environment and also the transposed regulations in Ireland (S.I. 435/2004).

The following principal sources of guidance will be used during the overall SEA process and during preparation of the Environmental Report.

- Strategic Environmental Assessment (SEA) Checklist - Consultation Draft. January 2008. Environmental Protection Agency.

- GISEA Manual – Consultation Draft. April 2009 Environmental Protection Agency.

- Implementation of SEA Directive (2001/42/EC). Assessment of Certain Plans and Programmes on the Environment. Guidelines for Regional Planning Authorities. November 2004. Department of Environment, Heritage and Local Government.

- Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland. Synthesis Report. 2003. Environmental Protection Agency.

- Guidelines on SEA. Department of Communications, Energy and Natural Resources.

- Strategic Environmental Assessment Toolkit (Version 1). September 2006. Scottish Executive.

# 2 INTERACTION WITH OTHER RELEVANT PLANS AND PROGRAMMES

As part of the SEA process the context of the Freshwater Pearl Mussel Sub-Basin Management Plans must be established with regard to other plans and programmes that have been adopted at the International, European and National Levels. In particular the interaction of the environmental protection objectives and standards included within these plans and programmes with the Freshwater Pearl Mussel Sub-Basin Management Plans requires consideration.

**Tables 2 to 4** summarise the findings of an initial review of environmental plans and programmes, adopted at International, European Community or Member State level, which would be expected to influence, or be influenced by, the Freshwater Pearl Mussel Sub-Basin Management Plans. A more detailed list will be compiled as part of the Environmental Report and suggestions are welcomed as part of the scoping consultation.

**Table 2: Preliminary Review of Legislations, Plans, Policies and Programmes - International**

| Topic | Title | Summary of Objectives |
|---|---|---|
| Biodiversity | UN Convention on Biological Diversity (1992) | Objectives include the maintenance and enhancement of Biodiversity. |
| | The Ramsar Convention The Convention on Wetlands of International Importance (1971 and amendments) | Objectives include protection and conservation of wetlands, particularly those of importance to waterfowl as Waterfowl Habitat. |
| Climate | UN Kyoto Protocol The United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol 1997 | Objectives seek to alleviate the impacts of climate change and reduce global emissions of GHGs. |

**Table 3: Preliminary Review of Legislations, Plans, Policies and Programmes - European Union**

| Topic | Title | Summary of Objectives |
|---|---|---|
| Biodiversity | The EU Biodiversity Strategy Communication on a European Community Biodiversity Strategy | Objectives seek to prevent and eliminate the causes of biodiversity loss and maintain and enhance current levels of biodiversity. |
| | The EU Habitats Directive (92/43/EEC) | Objectives seek to prevent and eliminate the causes of habitat loss and maintain and enhance current levels of biodiversity. |
| | The EU Birds Directive (as modified) (79/409/EEC) | Objectives seek to prevent and eliminate the causes of bird species loss and maintain and enhance current levels of biodiversity. |

| Topic | Title | Summary of Objectives |
|---|---|---|
| | Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats), | Objectives seek to conserve wild flora and fauna and their natural habitats and to monitor and control endangered and vulnerable species. The convention also seeks to promote cooperation between states. |
| | The EU Freshwater Fish Directive (78/659/EEC) | Objectives seek to protect those fresh water bodies identified by Member States as waters suitable for sustaining fish populations. For those waters it sets physical and chemical water quality objectives for salmonid waters and cyprinid waters |
| | *Action plans for* Margaritifera auricularia *and* Margaritifera margaritifera *in Europe*. Nature and Environment, No. 117. Council of Europe Publishing, Strasbourg.) | Conservation of populations, their habitats, future viability and long-term survival. |
| Climate | Second European Climate Change Programme (ECCP II) 2005. | Objectives seek to develop the necessary elements of a strategy to implement the Kyoto protocol. |
| | Adapting to climate change in Europe – options for EU action {SEC(2007) 849} | Objective is to kick-start a Europe-wide public debate and consultation on how to take forward possible avenues for action in adapting to climate change at EU level. |
| Cultural Heritage | The Valletta Convention (1992) | Objective is to protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study. |
| Human Health | The EU Environment and Health Strategy 2004-2010 (first period) | Objectives seek to prevent and reduce the impacts of pollution on human health. |
| | The EU REACH Initiative Registration, Evaluation and Authorisation of Chemicals (REACH) | Objectives seek to limit the harmful effects to the environment and human health from certain chemicals through improved analysis and data collection. |
| | The Plant Protection Products Directive (91/414/EEC) | To harmonise the overall arrangements for authorisation of plant protection products within the European Union. This is achieved by harmonising the process for considering the safety of active substances at a European Community level by establishing agreed criteria for considering the safety of those products. Product authorisation remains the responsibility of individual Member States. |
| | The Seveso (II) Directive (96/82/EC as amended) | Objective to prevent major accidents involving dangerous substances and limit their consequences for man and the environment, with a view to ensuring high levels of protection throughout the Community |
| Soils | The Soils Directive (Draft) | The proposed Directive lays down a framework for the protection and sustainable use of soil based on the principles of integration of soil issues into other policies, preservation of soil functions within the context of sustainable use, prevention of threats to soil and mitigation of their effects, as well as restoration of degraded soils to a level of functionality consistent at least with the current and approved future use of the land. |
| Sustainable Development | EU Common Agricultural Policy | Aims to provide farmers with a reasonable standard of living, consumers with quality food at fair prices and to preserve rural heritage. |

| Topic | Title | Summary of Objectives |
|---|---|---|
| | The Gothenburg Strategy (2001) Communication from the Commission on "a Sustainable Europe for a Better World" | Objectives seek to make the future development of the EU more sustainable. |
| | The Sixth Environmental Action Programme (EAP) of the European Community 2002- 2012 | Objectives seek to make the future development of the EU more sustainable. |
| | The SEA Directive (2001/42/EC) | Objective is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment. |
| | The EIA Directive | Objective is to require Environmental Impact Assessment of the environmental effects of those public and private projects which are likely to have significant effects on the environment. |
| Water | EU Dangerous Substances Directive (76/464/EEC) | The objective is to regulate potential aquatic pollution by thousands of chemicals produced in Europe. The Directive covered discharges to inland surface waters, territorial waters, inland coastal waters and groundwater. |
| | EU Water Framework Directive (2000/60/EC) | Objectives seek to maintain and enhance the quality of all surface waters in the EU. The RBMPs and POMs are a requirement of this directive. |
| | The Groundwater Directive (1980/68/EC) | Objectives seek to maintain and enhance the quality of all groundwater in the EU. |
| | EU Floods Directive (2007/60/EC) | The Floods Directive applies to river basins and coastal areas at risk of flooding. With trends such as climate change and increased domestic and economic development in flood risk zones, this poses a threat of flooding in coastal and river basin areas. |
| | Bathing Water Directive 2006/7/EC | The overall objective of the revised Directive remains the protection of public health whilst bathing, but it also offers an opportunity to improve management practices at bathing waters and to standardise the information provided to bathers across Europe. |
| | Nitrates Directive 91/676/EEC | This Directive has the objective of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution. |
| | Urban Wastewater Treatment Directive 91/271/EEC. Amended under Directive 98/15/EEC | The primary objective is to protect the environment from the adverse effects of discharges of urban wastewater, by the provision of urban wastewater collecting systems (sewerage) and treatment plants for urban centres. The Directive also provides general rules for the sustainable disposal of sludge arising from wastewater treatment. |
| | The Sewage Sludge Directive 86/278/EEC | Objective is to encourage the use of sewage sludge in agriculture and to regulate its use in such a way as to prevent harmful effects on soil, vegetation, animals and man. To this end, it prohibits the use of untreated sludge on agricultural land unless it is injected or incorporated into the soil. |
| | Groundwater Directive (2006/118/EC) | This new directive establishes a regime which sets underground water quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater. |

| Topic | Title | Summary of Objectives |
|---|---|---|
| | IPPC Directive (2008/1/EC) | Objective is to achieve a high level of protection of the environment through measures to prevent or, where that is not practicable, to reduce emissions to air, water and land. The Directive provides an integrated approach to establish pollution prevention from stationary "installations". This codified act includes all the previous amendments to the Directive 96/61/EC and introduces some linguistic changes and adaptations. |
| | Drinking Water Directive (DWD) Council Directive 98/83/EC | The primary objective is to protect the health of the consumers in the European Union and to make sure the water is wholesome and clean. |

**Table 4: Preliminary Review of Legislations, Plans, Policies and Programmes - Ireland**

| Topic | Title | Summary of Objectives |
|---|---|---|
| Biodiversity | The National Biodiversity Plan (2002) | Objectives include the enhancement and conservation of biodiversity. |
| | The Wildlife Act 1976. The Wildlife (Amendment) act 2000 | The purpose of the Wildlife Act, 1976 and the Wildlife Amendment Act, 2000 is to provide for the protection of Wildlife (both Flora and Fauna) and the control of activities which may impact adversely on the conservation of Wildlife. |
| | European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009 (SI 296) | These regulations establish a programme, including a timeframe, for the reduction of pressures giving rise to unfavourable conservation status. The programme shall include pressure reduction targets and deadlines, either in relation to individual pollutants or to particular |
| | European Communities (Natural Habitats) Regulations, SI 94/1997, as amended SI 233/1998 and SI 378/2005 | These Regulations give effect to Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive) and the Minister to designate special areas of conservation (endangered species and habitats of endangered species) as a contribution to an EU Community network to be known as NATURA 2000. |
| | Flora Protection Order 1999 | Objectives are to protect listed flora and their habitats from alteration, damage or interference in any way. This protection applies wherever the plants are found and is not confined to sites designated for nature conservation. |
| | Quality of Salmonid Waters Regulations 1988 (SI 293 of 1988) | Prescribe quality standards for salmonid waters and designate the waters to which they apply, together with the sampling programmes and the methods of analysis and inspection to be used by local authorities to determine compliance with the standards. Also, give effect to Council Directive No. 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life |
| | NPWS Conservation Plans and/or Conservation Objectives for SAC and SPAs | The aim of conservation planning is to: to identify and evaluate the features of interest for a site; to set clear objectives for the conservation of the features of interest; to describe the site and its management; to identify issues (both positive and negative) that might influence the site; and to set out appropriate strategies/management actions to achieve the objectives.<br><br>General conservation objectives have been compiled for SACs and SPAs based on the sites qualifying features. It is the goal to have conservation plans for all areas designated for conservation. |
| Climate | National Climate Change Strategy (2000) and National Climate Change Strategy | Objectives include the reduction of national GHG emissions (including those from the water sector) |

| Topic | Title | Summary of Objectives |
|---|---|---|
| | 2007-2012 | |
| Cultural Heritage | National Heritage Plan (2002) | Core objective is to protect Ireland's heritage. Plan uses the "polluter pays principle" and the "precautionary principle". Sets out archaeological policies and principles that should be applied by all bodies when undertaking a development. |
| Human Health | Quality of Bathing Waters Regulations 1988 (SI 84 of 1988) and amendments | Prescribe bathing water quality standards and the bathing areas to which they apply, together with the sampling programmes and the methods of analysis and inspection to be used by local authorities to determine compliance with the standards. Give effect to Council Directive No. 76/160/EEC concerning the quality of bathing water. |
| Planning | National Spatial Strategy 2002-2020 (2002) | Objectives of the NSS are to achieve a better balance of social, economic and physical development across Ireland, supported by more effective planning. |
| | National Development Plan from 2007 to 2013 | Objectives of the NDP are to promote more balanced spatial and economic development. |
| | Planning and Development Act 2000 | Revised and consolidated the law relating to planning and development by repealing and re-enacting with amendments the Local Government (Planning and Development) Acts, 1963 to 1999; to provide, in the interests of the common good, for proper planning and sustainable development including the provision of housing; to provide for the licensing of events and control of funfairs; to amend the Environmental Protection Agency Act 1992, the Roads Act 1993, the Waste Management Act 1996, and certain other enactments. |
| Sustainable Development | Sustainable Development: A Strategy for Ireland (1997) (DEHLG) | Objectives are to ensure that future development in Ireland occurs in a sustainable manner. |
| | European Communities (Environmental Assessment of Certain Plans and Programmes Regulations 2004 (S.I. 435 of 2004) | The EU SEA Directive was transposed into Irish Law under S.I. 435 in 2004. |
| Environment | The Environmental Protection Agency Act 1992 | Objectives include the better protection of the environment and the control of pollution through improved licensing and monitoring. |
| | The Protection of the Environment Act 2003 | Objectives include for better protection of the environment and the control of pollution through improved licensing and monitoring. |
| Water | Drinking Water Regulations SI 439 of 2000 | Prescribe quality standards to be applied in relation to certain supplies of drinking water, including requirements as to sampling frequency, methods of analysis, the provision of information to consumers and related matters. Give effect to provisions of EU Council Directive 98/83/EC on the quality of water intended for human consumption. |
| | Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations 1998 (SI 258 of 1998) | Provide for specified improvements in water quality conditions in rivers and lakes based on phosphorus concentrations or related water quality classifications and give effect to certain requirements arising under Council Directive 76/46/EC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community. |
| | Water Quality in Ireland 2001-2003 | This document assesses the quality of Ireland's aquatic ecosystems concentrating on ambient water quality indicators. |
| | Water Quality in Ireland 2005: Key indicators of the Aquatic Environment | The quality of rivers, lakes, estuaries, coastal waters, ground waters and canals is discussed in this report. |

| Topic | Title | Summary of Objectives |
|---|---|---|
| | Towards setting guideline values for the protection of groundwater in Ireland (2003) | Proposals for setting environmental quality objectives and standards for groundwater through use of guideline values. |
| | European Communities (Water Policy) Regulations (SI 722 of 2003) | Provide for the transposition into Irish national law of the provisions of the EU Water Framework Directive. |
| | European Communities (Good Agricultural Practice for Protection of Waters) Regulations 2005 (S.I. No. 378 of 2006) | Objective is to provide statutory support for good agricultural practice to protect waters against pollution from agricultural sources. Give further effect to several EU Directives including Directives in relation to protection of waters against pollution from agricultural sources ("the Nitrates Directive"), dangerous substances in water, waste management, protection of groundwater, public participation in policy development and water policy (the Water Framework Directive). |
| | Arterial Drainage Acts, 1945 and 1995 | Deals with the improvement of lands by drainage and the preventing or sustainably reducing the flooding of lands. Sets up the process of Arterial Drainage Schemes and provides for the maintenance of these works. Also implements a number of drainage and flood reduction related measures such as approval procedures for bridges and weirs, and iterates reporting requirements for Drainage Districts. |
| | Surface Water Regulations (SI 272 of 2009), | These Regulations apply to all surface waters and are made to give effect to the measures needed to achieve the environmental objectives established for bodies of surface water by the Water Framework Directive, including the environmental quality standards. They also give further effect to the requirements of the Dangerous Substances Direct |
| | Waste Water Discharge (Authorisation) Regulations (SI 684 of 2007) | The purpose of these Regulations is to prevent and reduce the pollution of waters by waste water discharges by giving effect to Article 6 of the Dangerous Substances Directive and includes the purpose of implementing measures required under the Water Framework Directive e.g. Article 4(1), Article 7(2) and (3), Article 16 (1) and (8). |
| | Draft Groundwater Regulations | The draft Regulations establish a new regime for the protection of groundwater in line with the requirements of the WFD and by the Groundwater Directive (20006/118/EC). This is to be achieved by establishing Environmental Objectives, Groundwater Quality Standards and Threshold Values for the classification of groundwater. |
| Waste | The Waste Management Act 1996 and amendments | Objectives include (amongst others) the more effective and environmentally sensitive management of wastes in Ireland. |

For additional relevant plans and programmes in Ireland please also see the document, *Register of Plans and Programmes, Background Document to the River Basin Management Plans in accordance with Article 13(3) of the European Communities (Water Policy) Regulations 2003 (S.I. No 722 of 2003)*, prepared by the Shannon IRBD (September 2008).

## 2.1 POSITION OF PLAN WITHIN THE PLANNING HIERARCHY

The Freshwater Pearl Mussel Sub-Basin Management Plans will be administered wholly within Ireland. Therefore, the planning hierarchy in Ireland must be considered when placing the sub-plans in the context of other adopted plans and programmes. Within Ireland, the Planning and Development Act, 2000, has established a hierarchy in relation to planning as follows:

- National Development Plan (NDP);
- National Spatial Strategy (NSS);
- Regional Planning Guidelines;
- County, Borough and Urban District Development Plans; and
- Local Area Plans, Integrated Area Plans, Action Area Plans.

A draft Hierarchy of Plans and Programmes in which the Freshwater Pearl Mussel Sub-Basin Management Plans are placed in context is illustrated in **Figure 4**. The Freshwater Pearl Mussel Sub-Basin Plans represent higher level regional planning and will inform regional and county development plans and other local level planning strategies.

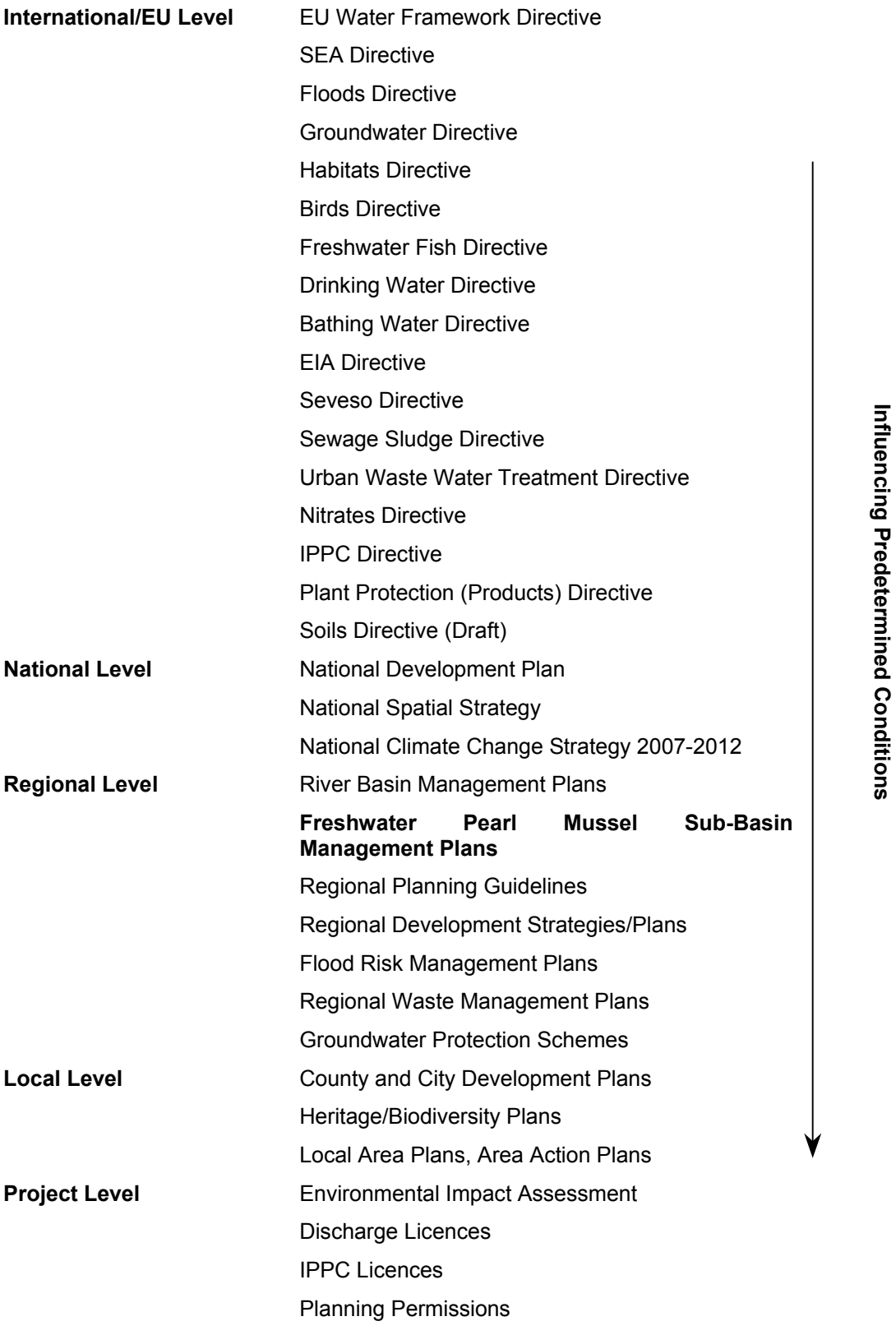


**Figure 4 Draft Hierarchy of Plans and Policies**

# 3 SCOPING OF RELEVANT ENVIRONMENTAL ISSUES

## 3.1 SCOPE OF THE PLAN

### 3.1.1 Geographic Scope

The Freshwater Pearl Mussel Sub-Basin Management Plans relate to a total of 19 SAC (designated for the pearl mussel), covering 27 sub-basins. Twenty-six of these sub-basins hold *Margaritifera margaritifera* and one, the River Nore, contains *M. durrovensis*. **Figure 2** shows the national distribution of the 27 sub-basins.

### 3.1.2 Temporal Scope

The Freshwater Pearl Mussel Sub-Basin Management Plans will cover the period from 2009 up to 2014, and will be reviewed after five years. In line with the SEA Directive, short, medium and long-term impacts (including reference to secondary, cumulative, synergistic, permanent and temporary, positive and negative effects) will be considered during the assessment.

## 3.2 SCOPING OF STRATEGIC ENVIRONMENTAL ASSESSMENT TOPICS

In accordance with S.I. 435 of 2004 (SEA Regulations, Ireland) consideration has been given to whether the environmental effects, positive or negative, of the Freshwater Pearl Mussel Sub-Basin Management Plans are likely to be significant. A summary of the conclusions is listed in **Table 5**, below.

**Table 5: Scoping of SEA Issues**

| SEA Issue | Scoped In / Out | Reason for scoping SEA environmental issue in or out |
|---|---|---|
| Biodiversity, Flora and Fauna | **In** | • Likely effects on protected areas: European (e.g. SAC, Special Protection Areas (SPA), Ramsar sites) and water dependent Natural Heritage Areas (NHA)<br>• Likely effects on flora, fauna and habitats linked to water<br>• Likely effects on salmonids, other protected fish and shellfish species<br>• Likely effects on sensitive habitats<br>• Interaction with Habitats Directive, i.e. Article 6<br>• Potential to protect and enhance biodiversity as a whole on a national, regional and local level<br>• Control of impacts from habitat loss and fragmentation<br>• Control of impacts from alien species and invasive species |

| SEA Issue | Scoped In / Out | Reason for scoping SEA environmental issue in or out |
|---|---|---|
| Population | **In** | • Recreational use of water (e.g. bathing, fishing)<br>• Effects on Eco-Tourism<br>• Possible effects on tourism (e.g. navigation, fishing, water sports)<br>• Effects on National Parks and other designated areas<br>• Improving degraded sites affecting water quality<br>• Commercial and agricultural activities with an influence on water<br>• Increase in demand for wastewater treatment either at the municipal level or individual wastewater treatment systems<br>• Increase in demand for water supply |
| Human Health | **In** | • Effects on protected bathing waters<br>• Effects on shellfish protected waters<br>• Effects from drinking water abstraction (surface and groundwater)<br>• Effects on drinking water protected areas<br>• Effects on overall water quality, including municipal and private drinking water supplies<br>• Effects from invasive species (e.g. Giant Hogweed)<br>• Effects from toxic algal blooms |
| Soil | **In** | • Impacts of afforestation/deforestation on water environment<br>• Effects of contaminated land on the water environment<br>• Effects of historical landfills on the water environment<br>• Land vulnerable to erosion<br>• Nitrate vulnerability (also connected to groundwater quality)<br>• Erosion and soil function<br>• Effects of peat cutting<br>• Influence on land use practices (e.g. fertiliser application)<br>• Effects of existing/historical mining activities on the water environment<br>• Effects on geomorphology (i.e. river channels, landforms)<br>• Effects of discharges on receiving aquatic sediments |
| Water | **In** | • Pressures and impacts on ecological status of water bodies<br>• Water pollution from point or diffuse sources<br>• Morphological impacts on FPM areas from engineering and other works<br>• Impacts on FPM areas from abstraction (including fish passage)<br>• Impacts on FPM areas from landfills, mines/quarries, contaminated land, landspreading of organic was<br>• Impacts on FPM areas from peat extraction<br>• Impacts on groundwater quality and quantity<br>• Impacts on combined stormwater overflows<br>• Impacts of forestry on the water environment<br>• Effects on lakes, ponds, standing waters and other wetlands including peatlands<br>• Impacts on water supply (including potable) and water conservation<br>• Potential to improve water body status, including heavily modified and artificial water bodies |
| Air | **Out** | • Effect of odour generated by wastewater treatment facilities would be localised and best assessed at the individual project level. |

| SEA Issue | Scoped In / Out | Reason for scoping SEA environmental issue in or out |
|---|---|---|
| Climatic Factors | **In** | • Climate change mitigation and adaptation, including to effects from severe weather events and coastal zone management<br>• Flooding (link to water receptor)<br>• Changes in greenhouse gas emissions from water management activities |
| Material Assets | **In** | • Sustainable use of water (link to water receptor)<br>• Impacts from flow regulation,<br>• Change in land use based on risk to FPM areas in terms of water quality, quantity and flooding thus reducing value of land either by limiting development potential or requiring a change in land use.<br>• Tourism value of FPM areas.<br>• Road and bridge construction adjacent to FPM areas<br>• Protection of water related assets |
| Cultural, Architectural and Archaeological Heritage | **In** | • Nationally designated sites within 10m of FPM waterbodies<br>• Effects on water based archaeological features<br>• Effects on cultural heritage features in the vicinity of floodplains and/or watercourses (i.e. mills, mill races and bridges)<br>• Effects on historic ford crossings<br>• Effects on industrial archaeology (e.g. canals)<br>• Potential for disturbance of previously undiscovered archaeological remains near or within water bodies during development of water-related infrastructure (e.g. wastewater treatment facilities, flood defences, crossings). |
| Landscape | **Out** | • Effect of isolated infrastructure would be localised and best assessed at the individual project level. |

# 4 KEY ENVIRONMENTAL CHARACTERISTICS

The FPM was historically widespread in Ireland. There appear to have been three periods over the last 150 years during which the mussel has faced very serious problems: The first was after the Drainage (Ireland) Act of 1842, when many river catchments were modified and the land adjacent the rivers changed radically. The second period of decline coincided with Ireland's entry into the EEC in 1973, and the intensification of agricultural practices, including an increase in phosphorus and nitrogen loading to river catchments. The third phase of pearl mussel population decline is currently ongoing. Three of the key pressures facing FPM populations in current times relate to:

- Land that was not intensively managed historically but has, in recent years, been improved and repeatedly fertilised for agriculture or forestry and is now a source of fine sediment and/or phosphorus;

- Forestry units which are now reaching maturity and have potential to release large quantities of phosphorus and fine sediments into rivers during and after felling; and

- Recent intensification of development, including land clearance, pressure on sewerage schemes and inappropriate siting of on-site systems for once-off housing, is adding to the nutrient and sediment load.

The FPM rivers in Ireland that are known to have recruited young recently are generally in remote areas, with short rivers and small catchments that historically have not been subject to intensive fertiliser inputs. They are typically areas of low human population density, with few urban areas and any habitation being located low down in the catchments. They are mainly below lakes, which provide an even, buffered source of water through the river. Many of the SAC rivers for *Margaritifera margaritifera* fall into this category.

## 4.1 ENVIRONMENTAL CONDITIONS SUITABLE FOR FPM

The habitat of *Margaritifera margaritifera* in Ireland is restricted to near natural, clean flowing waters, often downstream of ultra-oligotrophic lakes. A small number of records are from the lakes themselves. The pearl mussel requires stable cobble and gravel substrate with very little fine material below pea-sized gravel. Adult mussels are two-thirds buried and juveniles up to five to ten years old are totally buried within the substrate. The lack of fine material in the river bed allows for free water exchange between the open river and the water within the substrate. The free exchange of water

means that oxygen levels within the substrate do not fall below those of the open water. This is essential for juvenile recruitment, as this species requires continuous high oxygen levels.

The clean substrate must be free of inorganic silt, organic peat, and detritus, as these can all block oxygen exchange. Organic particles within the substrate can exacerbate the problem by consuming oxygen during the process of decomposition. The habitat must be free of filamentous algal growth and rooted macrophyte growth. Both block the free exchange of water between the river and the substrate and may also cause night time drops in oxygen at the water-sediment interface.

The open water must be of high quality with very low nutrient concentrations, in order to limit algal and macrophyte growth. Nutrient levels must be close to the reference levels for the river they inhabit. Phosphorus must never reach values that could allow for sustained, excessive filamentous algal growth.

The presence of sufficient salmonid fish to carry the larval glochidial stage of the pearl mussel life cycle is also essential.

The conservation targets for sustainable mussel populations include maintenance of free water exchange between the river and the substrate and minimal coverage by algae and weed. The particular emphasis is on maintenance or restoration of juvenile habitat, i.e. the river bed structure required to breed the next generation.

**Table 6** shows the sustainable pearl mussel habitat attributes, with ecological quality objectives for pearl mussel sites as set out in the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations 2009.

The targets set out in these Regulations are interim targets that may be revised in line with the results of the monitoring programmes. These targets may be too stringent or not stringent enough – and will be reviewed following analysis of pearl mussel recruitment data with data for nearby diatoms, macroinvertebrates and other monitored elements. It may also be necessary to set Ecological quality Objectives (EQOs) for other water-borne pollutants, e.g. dangerous substances, as more data becomes available.

**Table 6: Ecological Quality Objectives (EQO) for Freshwater Pearl Mussel Habitat**

| Element | Objective | Notes |
|---|---|---|
| Macroinvertebrates | EQR ≥0.90 | High status |
| Filamentous algae (Macroalgae) | Absent or Trace (<5%) | Any filamentous algae should be wispy and ephemeral and never form mats |
| Phytobenthos (Diatoms) | EQR ≥0.93 | High status |
| Macrophytes - rooted higher plants | Absent or Trace (<5%) | Rooted macrophytes should be absent or rare within the mussel habitat. |
| Siltation | No artificially elevated levels of siltation | No plumes of silt when substratum is disturbed |

## 4.2 CURRENT PRESSURES

The decline of pearl mussel populations in Ireland has mostly occurred from the continuous failure to produce new generations of mussels because of the loss of clean gravel beds, which have become infiltrated by fine sediment and/or over-grown by algae or macrophytes. Key pressures areas include the following categories;

### 4.2.1 Hydrological and Morphological Pressures

Engineering activity involving structures within rivers are an issue. As part of the River Basin Management Plan and Programmes of Measures for Morphology, it was recognised that a prior authorisation or registration based system to manage future engineering activities near rivers and lakes would be required. This is in line with the requirements of the WFD required measure - Control on physical modifications to surface waters'. The Department of the Environment, Heritage and Local Government is considering the introduction of new regulations to control physical modifications to surface waters. These may be risk-based with varying levels of authorisation depending on the extent of engineering activity proposed.

The drainage of bog lands and subsequent peat extraction activities result in an increase in the amount of water emanating from sites as both baseflow and storm water, potentially leading to large quantities of peat sediment being discharged to the receiving waters. The potential for run-off of peat sediment is greater during extreme rainfall events[3]. Water abstraction from rivers can cause low flows, which can be directly damaging through drying out of existing or potential mussel habitat, or through temperature increases, silt deposition or nutrient concentration. Water abstraction from managed lakes can cause low flows in the river downstream.

### 4.2.2 Diffuse Pressures

**Forestry**

Forestry establishment (including drainage and ground preparation), thinning, road construction, harvesting, replanting and all associated management practices are a major potential source of both silt and nutrients in pearl mussel catchments. Establishment of forests (afforestation) generally involves site preparation including drainage, which can give rise to erosion and release of silt into rivers or lakes. Afforestation also occasionally involves the use of herbicide. Fertilisation of forestry at establishment stage and subsequently (often aerial fertilisation) can lead to release of nutrients into the watercourse. Fertilisation is generally a requirement for nutrient poor soils such as peat soils (raised bog, blanket bog, fen peat and cutaway peat). Brash left on site during and following harvesting operations can also release nutrients through decomposition, a process which can continue for a significant number of years. A further significant contributing factor is the extent of the drainage network in the forested areas. Prior to 1990, forests were established with extensive drainage networks draining directly to surface water courses and lakes, and without the benefit of buffer strips. Recent research related to forestry operations, such as harvesting, indicates these forest stands, where planted on peat type soils, pose the greatest threat in terms of sedimentation and nutrient loss.

**Agriculture**

Agricultural practices that contribute to increases in nutrient or silt to the river can be damaging to pearl mussels. Any practice that leads to exposure of bare ground can increase the fine sediment and nutrient load to the river. The cumulative effects of such practices can have very severe impacts on the FPM.

Liming of land has a negative effect on pearl mussel populations, through direct toxic effects, and through increased growth rates leading to shortened life expectancy and, thus, loss of reproductive

[3] Shannon IRBD, 2008: Freshwater Morphology Programmes of Measures and Standards Study, Review of Best Practice Measures.

years (Bauer et al. 1991[4], Skinner et al. 2003[5]). While in some countries, acidification problems are so severe that liming is considered to have a more positive than negative effect (Henrikson et al. 1995[6]), water chemistry data from declining Irish pearl mussel rivers indicate high peaks of calcium and conductivity levels that are likely to have been caused by liming.

Pearl mussels continued to thrive until recent years in catchments with very extensive agricultural practices. The intensification of agriculture, particularly with slurry and artificial fertilisers has led to cumulative effects that have had very severe consequences for pearl mussel reproductive success.

Toxic products have also resulted in the deaths of adult and juvenile mussels and, in one extreme case, the loss of an entire pearl mussel population. Pesticides such as sheep dip products are probably the most severe, but evidence from American surveys of glochidial stages of Unionid mussels have demonstrated lethal effects from very low doses and environmentally relevant concentrations of chlorpyrifos and permithrin, the fungicides chlorothalonil, pyraclostrobin and propiconazole and glyphosate (Bringolf et al., 2007a, b, c). Of particular concern are the severe deleterious effects of the latter substances in combination with surfactant blends. The end product including the surfactants, can result in a much more toxic product than that of the individual ingredients.

**On-Site Wastewater Treatment Systems**

On-site wastewater treatment systems and other small effluent systems can be significant sources of nutrients to rivers. Losses from such systems typically behave as diffuse nutrient sources; however, more serious leaks and inappropriate systems can cause point source pollution damage.

### 4.2.3 Point Source Pressures

Point sources discharging nutrients, such as wastewater treatment plants, can contribute very significant nutrient and organic loads to rivers. Quarry dust and effluent can cause problems with silt pollution and, in some cases, lime pollution. Landfills and landfill leachate can be sources of surface and groundwater contamination that can find pathways to the river. Storm water drainage can also be a source of silt and pollutants.

[4] Bauer G., Hochwald, S. & Silkenat, W. (1991). Spatial distribution of freshwater mussels: the role of host fish and metabolic rate. *Freshwater Biology* 26, 377-386.
[5] Skinner, A., Young, M. & Hastie, L. (2003). *Ecology of the Freshwater Pearl Mussel.* Conserving Natura 2000 Rivers. Ecology Series No. 2. English Nature, Peterborough.
[6] Henriksen, A., Posch, M., Hultberg, H. & Lien, L. (1995). Critical loads of acidity for surface waters - Can the ANC(limit) be considered variable? *Water Air and Soil Pollution* 85, 2419-2424.

# 5 INTENDED APPROACH TO ASSESSMENT

The preceding sections have identified the environmental characteristics and key environmental issues relating to the FPM Sub-Basin Management Plans and the key influences from external plans, policies and strategies. This section uses that information to set out a series of draft SEA Objectives, Indicators and associated Targets. These will be used in the Environmental Report to predict the likely environmental effects of the FPM Sub-Basin Management Plans and, subsequently, monitor implementation of these plans. The use of these objectives ensures that following this scoping stage the SEA focuses only on those issues that are most relevant and significant to the study and the FPM Sub-Basin Management Plans.

## 5.1 DRAFT SEA OBJECTIVES

Set out in **Table 7** are the draft SEA Objectives that are being considered to test the potential environmental impacts of the Freshwater Pearl Mussel Sub-Basin Management Plans. These objectives are based on the objectives used in the SEA for the River Basin Management Plans and Programmes of Measures and on the current understanding of the key environmental issues identified. The use of environmental objectives similar to the ones used in the River Basin Management Plans is intended to ensure compatibility with these related sub-plans and in recognition of the relationship between the RBMP and these Sub-basin Plans.

The Detailed Assessment Criteria are examples of the issues that will be considered during the assessment of whether the Freshwater Pearl Mussel Sub-Basin Management Plans, including the proposed alternatives, meet the proposed SEA Objectives. It should be noted that these are draft objectives (**Table 7**) only and may be refined or developed further during the study.

**Table 7: Draft SEA Environmental Objectives**

| Objective | Detailed Assessment Criteria* – To what extent will the Freshwater Pearl Mussel Sub-Basin Management Plans: | Related to SEA Topic(s) |
|---|---|---|
| **Objective 1** Prevent damage to terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species. | • Provide effective protection of European and nationally designated biodiversity sites?<br>• Sustain, enhance or where relevant prevent the loss of ecological networks or parts thereof which provide significant connectivity between areas of biodiversity?<br>• Avoid loss of relevant habitats, species or their sustaining resources in national and European designated ecological sites?<br>• Support delivery of WFD and RBMP?<br>• Reduce water related impacts by alien species? | Biodiversity, Flora and Fauna (BFF) |

| Objective | Detailed Assessment Criteria* – To what extent will the Freshwater Pearl Mussel Sub-Basin Management Plans: | Related to SEA Topic(s) |
|---|---|---|
| **Objective 2** Contribute to sustainable development. | • Guide land use planning?<br>• Ensure adequate water and wastewater treatment infrastructure capacity is in place?<br>• Improve water quality / quantity?<br>• Improve the provision of treatment services to those areas where deficiencies exist at present? | Population (P) |
| **Objective 3** Protect and reduce risk to human health in undertaking water management activities. | • Protect drinking water areas (including private abstractions), bathing waters, economic shellfish waters and fisheries? | Human Health (HH) |
| **Objective 4** Avoid damage to the function and quality of the soil resource in the FPM catchments. | • Accelerate or reduce erosion?<br>• Result in impacts on the productivity of agricultural land?<br>• Safeguard soil quality, quantity and function? | Soil (S) |
| **Objective 5** Prevent deterioration of the status of FPM designated water bodies with regard to quality, quantity and improve water body status to at least good status, as appropriate to the WFD. | • Provide effective protection of drinking water sources, as required by the WFD?<br>• Reduce the impacts from point source pollution, diffuse source pollution, abstraction, impoundment, flow regulation, direct discharges to groundwater, priority substance pollution, physical modifications, accidental pollution incidents and other activities with an impact on the status of water, as required by the WFD?<br>• Reduce impact from physical modifications on habitat and fish passage?<br>• Provide effective protection of “protected areas” as defined in the WFD?<br>• Contribute toward achieving the basic (“good / high status”) objectives of the WFD? | Water (W) |
| **Objective 7** Minimise contribution to climate change by emission of greenhouse gasses associated with Plan implementation. | • Contribute to reducing GHG emission from water management activities?<br>• Provide for measures that are vulnerable to climate change?<br>• Encourage improved energy efficiency? | Climatic Factors (C) |
| **Objective 10** Support economic activities within the District without conflicting with the objectives of the WFD or the FPM Regulations. | • Result in a loss of land available for economic activity?<br>• Result in significant changes to an existing economic activity, which would render it unviable? | Material Assets (MA1) |
| **Objective 11** Protect water as an economic resource. | • Provide for efficient and sustainable use of water for consumption, as a tourism and recreational resource and for other economic activities, e.g. commercial aquaculture?<br>• Maintain the economic benefit of water associated with navigation and trade activities? | Material Assets (MA 2) |
| **Objective 12** Avoid damage to cultural heritage resources in the FPM Catchments. | • Interfere with archaeological, architectural or cultural heritage features? | Cultural Heritage (CH) |

## 5.2 DRAFT INDICATORS AND TARGETS

Targets will be considered over the duration of the baseline data collection and assessment, and through the consultation process, in order to meet the strategic environmental objectives of the Freshwater Pearl Mussel Sub-Basin Management Plans. In each case, any target that is set must be attributable to the implementation of the Freshwater Pearl Mussel Sub-Basin Management Plans. The indicators will also be selected bearing in mind the availability of data and the feasibility of making direct links between any changes in the environment and the implementation of the Plans. Similar to the environmental objectives, the targets and indicators will be based in the first instance on those already in use for the RBMP and POM SEAs. These indicators will be developed during the study, including in response to comments received on this Scoping Document.

## 5.3 IMPACTS, MITIGATION AND MONITORING

In line with the requirements in the legislation the likely significant effects on the environment will be assessed. This includes reference to secondary, cumulative, synergistic, short, medium and long term, permanent and temporary, positive and negative effects as well as the interrelationships between the environmental issue areas. Where possible and practical, assessment of these impacts will be quantitative. Any problems encountered during the assessment of impacts, including technical difficulties and/or lack of information, will be highlighted and described, as appropriate.

All potential positive and negative impacts will be presented individually. In addition, a summary of the overall balanced potential effect will be presented for each environmental issue area.

With regard to cumulative impacts, the use and application of Geographical Information Systems (GIS) should be considered, where possible, at the various key stages in the SEA process. GIS could along with other methodologies and depending on the availability of relevant spatial data, assist in determining the cumulative vulnerability of various environmental resources nationally for all of the Freshwater Pearl Mussel Sub-Basin Management Plans.

Where significant adverse impacts are identified during the SEA process, relevant and appropriate mitigation measures will be provided in the Environmental Report. In order to ensure implementation of the recommended measures, monitoring arrangements will be provided and will include, where feasible, details as to the frequency of monitoring, and analysis and reporting on monitoring. As part of the monitoring programme, relevant and appropriate thresholds will be included to determine when remedial action is required for the particular aspect of the environment being monitored.

## 5.4 APPROPRIATE ASSESSMENT

The Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora) obliges member states to designate Special Areas of Conservation (SAC) to protect and conserve habitats and species of importance in a European Union context. Article 6 is one of the most important articles of the Habitats Directive in determining the relationship between conservation and site use. Article 6(3) requires that "Any plan or project not directly connected with or necessary to the conservation of a 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."

The Freshwater Pearl Mussel Sub-Basin Management Plans are directly connected to the conservation of the FPM within the 27 catchments designated SAC for FPM. However, it is recognised that there is potential to indirectly impact on other listed species in these SAC as a result of measures to protect and conserve the FPM. It has therefore been determined that the Freshwater Pearl Mussel Sub-Basin Management Plans will undergo screening for appropriate assessment in a parallel process to the SEA.

# 6 ALTERNATIVES

A key purpose of scoping is to set out sufficient details about the proposed methodological framework for the assessment of environmental effects to allow the consultees to form a view on this matter. **Table 8** contains an example of the assessment framework that is proposed for use during the SEA. It is proposed to use an objectives-led assessment which will involve comparing the proposed alternatives against each of the SEA Objectives for each of the identified issue areas (e.g. agriculture, forestry, physical modifications, abstraction, local issues). The following is an example only and is provided as an indication of how the assessment will be carried out.

**Table 8: Alternatives Compared to Draft SEA Objectives for Generic Activity (EXAMPLE ONLY)**

| Draft SEA Objectives | Alternative 1 (Business as Usual) | Alternative 2 (No Activity Allowed) | Alternative 3 (Continued Activity with stricter controls) |
|---|---|---|---|
| **Objective 1** Prevent damage to terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species | | | |
| **Objective 2** Contribute to sustainable development. | | | |
| **Objective 3** Protect and reduce risk to human health in undertaking water management activities | | | |
| **Objective 4** Avoid damage to the function and quality of the soil resource in the FPM catchments | | | |
| **Objective 5** Prevent deterioration of the status of FPM designated water bodies with regard to quality, quantity and improve water body status to at least good status, as appropriate to the WFD. | | | |
| **Objective 6** Minimise contribution to climate change by emission of greenhouse gasses associated with Plan implementation | | | |
| **Objective 7** Support economic activities within the District without conflicting with the objectives of the WFD or the FPM Regulations | | | |
| **Objective 8** Protect water as an economic resource. | | | |
| **Objective 9** Avoid damage to cultural heritage resources in the FPM Catchments. | | | |

# 7 CONSULTATION AND NEXT STEPS

As a first step in the scoping of the SEA, this Scoping Document will be sent to the three statutory consultees for SEA in Ireland (**Table 9)**. In addition, the draft Scoping Document will be made available on the NPWS website to encourage participation from a wider group of stakeholders.

**Table 9: Consultees in the SEA Scoping Process**

| Consultee | Statutory / Non-Statutory |
|---|---|
| Environmental Protection Agency | Statutory |
| Department of Environment, Heritage and Local Government | Statutory |
| Department of Communications, Energy and Natural Resources | Statutory |
| Wider Stakeholder | Non-statutory |

Following receipt of submissions, the draft scoping document will be finalised to take the issues and concerns raised into account.

The proposed timescale to complete the Environmental Report, the Freshwater Pearl Mussel Sub-Basin Management Plans and issue the SEA Statement is given in **Table 10**.

**Table 10: Proposed Timescale for SEA of South Eastern RBMP & POMs**

| Action | Timescale |
|---|---|
| Scoping Document Release | October 2009 |
| Consultation on Scoping Document | October / November 2009 |
| Completion of draft Environmental Report on draft FPM Sub-Basin Management Plans | November 2009 - January 2010 |
| Publication of Environmental Report and draft Plan for consultation | March 2010 |
| Publication of Final FPM Sub-Basin Management Plans and SEA Statement | 2010 |

Scoping is a dynamic process and is expected to continue throughout the SEA process, up to the publication of the Environmental Report. Following completion of the Scoping phase, it shall be made publicly available on the NPWS website for review. This will serve to continue to engage the wider public in the ongoing consultation that began at the start of the process to implement and comply with the FPM Regulations.