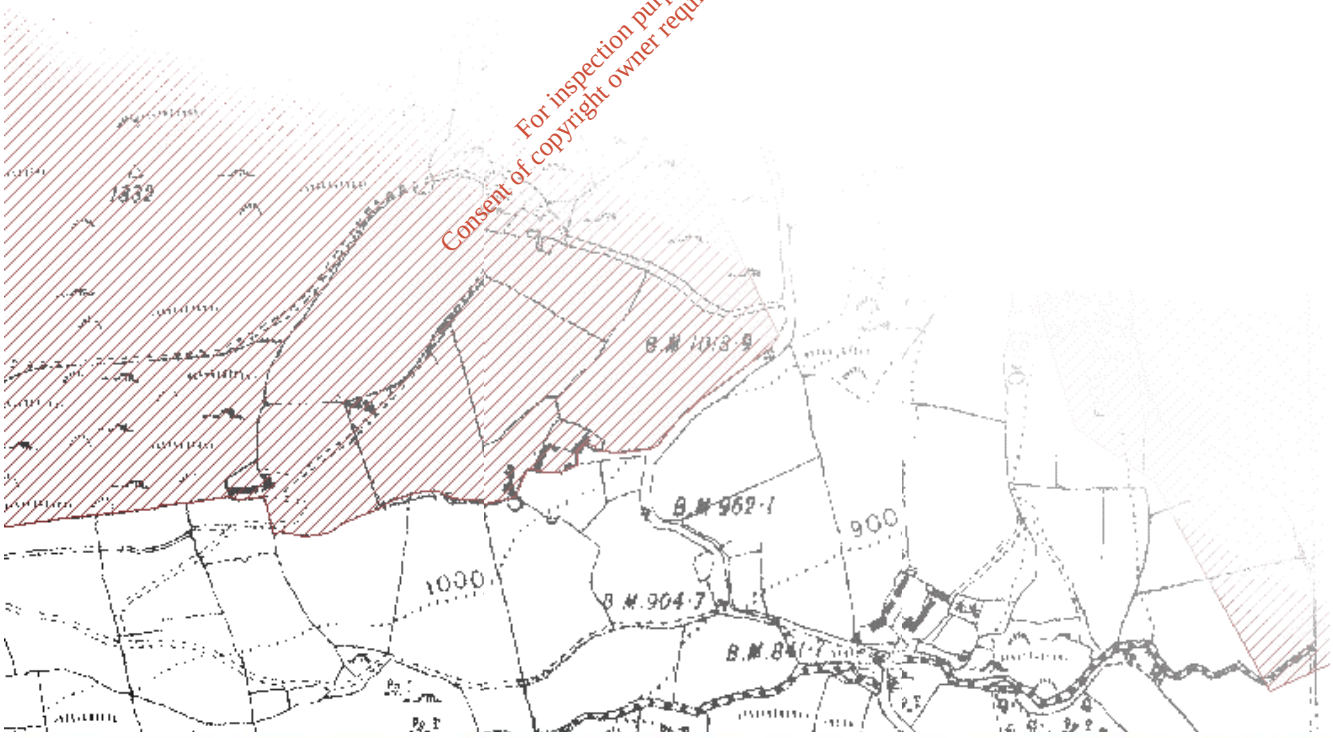
AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

National Parks and Wildlife Service Conservation Plan for 2005-2010

Ardmore Head cSAC

Site Code 2123

Co Waterford








SUMMARY

Introduction

Ardmore Head cSAC has been designated as a candidate Special Area of Conservation under the EU Habitats Directive. The site has been designated due to the presence of two Annex I habitats listed under the EU Habitats Directive, namely European dry heaths and vegetated sea cliffs.

Description of Ardmore Head cSAC

Ardmore Head cSAC is situated on a small headland to the east of the village of Ardmore, on the west Waterford coastline. In addition to the presence of the two Annex I habitats, Chough (an Annex I species listed in the EU Birds Directive) also occurs within the site. The presence of a nationally important colony of breeding Kittiwakes and other seabirds adds to the ecological interest of the site.

The dominant terrestrial habitat within the site is dry coastal heath, which is best viewed west of Ram Head. Species present include an abundance of Heather, with Bell Heather, Western Gorse, Wood Sage and Bent Grasses. In the eastern part of the site, the heath occurs as a mosaic with dry grassland and is dominated by Burnet Rose.

The vegetated sea cliffs are of moderate height (up to 40 m), continuous and precipitous. They are also well indented, and have numerous small ledges that support breeding seabirds. The aspect of the cliffs is mostly east and south-facing, but there is a small section facing north. Cliff vegetation consists of Sea Spurrey, Sea Campion, Sea Thrift, Buck's-horn Plantain and Scurvy Grass. Other flora includes Sea Beet, Yarrow and Wild Carrot.

The heath also merges into dry grassland, especially at Ardmore Head. Here, Cocksfoot, Bent Grasses, Bramble, Black Knapweed and Wild Thyme dominate the grassland. The site also contains associated coastal habitats. In places below the cliffs, there are boulder and shingle shorelines. Rocky islets and sea stacks, which are continuously washed over, also occur. An area of open marine water is included within the site, partly to give some protection to the seabirds that nest on the ledges above.

Land use at the site consists of tourism and low-level recreational use. A well-worn path is located along the cliff for much of the site and is regularly used for walking. The historical monuments within the site, such as St. Declan's holy well and old ruined church at the north of the site, also attract visitors. Drift net fishing, scuba diving and recreational fishing are carried out in the sea surrounding the site.

Main conservation objectives

- To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status; vegetated sea cliffs (25%) and European dry heaths (23%)
- To maintain other habitats at favourable conservation status, including open marine waters (33%), dry-humid acid grassland (10%), scrub (4%), exposed rocky shore and shingle beaches (3%), amenity grassland (<1%), non-calcareous springs (<1%), stonewalls and other stonework (<1%), hedgerows (<1%) and sea inlets and bays (part of 33% open marine water)
- To maintain the populations of notable species at favourable conservation status, including Chough, Peregrine Falcon and sea bird colonies that occur within the site
- To increase public awareness and appreciation of the conservation value of the site
- To establish effective liaison and co-operation with landowners, legal users and relevant authorities

Main management issues

- Amenity use
- Need for further scientific research
- Residential and other development in adjacent areas
- Value as an educational resource

Main strategies to achieve objectives

- Monitor extent of scrub encroachment on Annex I habitats, namely European dry heath, through regular patrolling and by use of aerial photographs
- Monitor the potential impact of amenity use within and adjacent to the site to ensure that activities do not cause damage and trampling
- Continue monitoring bird usage by Annex I species within the site
- Provide public display information and publish a leaflet on the conservation value of the site

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READER'S GUIDE

The National Parks and Wildlife Service (NPWS) of the Department of the Environment, Heritage and Local Government (DEHLG) has produced this plan to provide ecological information about the site and to outline the main objectives for the conservation of the special features of the site. The purpose of this draft is to provide stakeholders the opportunity to input into the development of the plan.

The **Introduction** section outlines the **policy background** to the site's designation and the relevant legislation.

The **Site Description** section contains **general information** on the site's boundaries and ownership and on the statutory bodies with responsibility for its conservation. It also contains sections on the **physical aspects** of the site such as the geology and hydrology as well as the **biological features**, in particular, the habitats and species found there. **Land use** and cultural features are also described.

The **Conservation Value** section assesses the main ecological attributes of the site.

The **Management Framework** section outlines the management necessary for the conservation of the site. It starts with a set of specific **conservation objectives.** These are followed by the main **management issues** that may impact on the conservation of the site and the **strategies** that are proposed to achieve the conservation objectives. In the final section, the site is divided into management **zones** to indicate where each strategy applies.

The appendices include a **glossary** where scientific and technical terms are explained, **reference material** consulted in the preparation of the plan and a list of **notifiable actions** relevant to each habitat within the site.

By preparing, implementing and reviewing this plan on a five-year basis, DEHLG aims to achieve the objectives of the EU Habitats Directive in relation to this site.

INTRODUCTION

Legal Background for Conservation Plans

The legal basis for selection and designation of **Special Areas of Conservation** (SACs) is the **EU Habitats Directive**, which was adopted in 1992. Focusing on the conservation of natural and semi-natural habitats and species of flora and fauna, the Habitats Directive seeks to establish "Natura 2000", a network of protected areas throughout the European Community. The Habitats Directive includes a list of habitats that require SAC designation and specific conservation measures. This list is known as Annex I and the habitats are referred to as Annex I habitats. On this list, habitats that require special attention because they are in danger of disappearance, are termed 'priority habitats'. A second list, Annex II in the Habitats Directive comprises species that must be afforded special protection.

In Ireland, the habitats and species that must be afforded protection under the Habitats Directive include:

- 16 Annex I priority habitats that require particular attention – including raised bogs, active blanket bogs, turloughs and machair,
- 45 other Annex I habitats – such as certain types of heaths, lakes and woodlands,
- 25 Annex II species – including Otter, Freshwater Pearl Mussel and Killarney Fern.

It is the responsibility of each member state to designate SACs to protect the Annex I habitats and Annex II species. These sites, together with the **Special Protection Areas** (SPAs) designated under the **EU Birds Directive** (1979), form the European "Natura 2000" network.

The Birds Directive contains annexes, which are lists of birds that require particular conservation measures (Annex I), and also species that may be hunted, and species that may be sold. There are 28 Annex I species regularly occurring in Ireland including Whooper Swan, Greenland White-fronted Goose, Peregrine Falcon, Corncrake and Terns. Member states are also required to protect sites that are important for migratory species such as ducks, geese and waders.

The Habitats Directive was transposed into Irish law through the **European Communities (Natural Habitats) Regulations 1997.** The **Wildlife Act 1976** is the main statute governing the protection of wildlife in Ireland and was amended in 2000 to take account of European law, particularly the Habitats and Birds Directives. The **Wildlife (Amendment) Act 2000** also makes legal provision for the designation and protection of a national network of **Natural Heritage Areas** (NHAs). Over 1,100 proposed NHAs were published in 1995 and almost 400 of these are also selected as candidate SACs.

The European Communities (Natural Habitats) Regulations 1997 include the following points:

The Minister for the Environment, Heritage and Local Government must transmit a candidate list of sites to the European Commission for consideration.

Following adoption of this list by the Commission, the Minister will formally designate the sites as SACs.

Sites are legally protected once they are publicly advertised.

Landowners and other users with a legal entitlement should be notified of designation, and the Minister must make all reasonable efforts to do so. Notification also includes a list of activities that may alter, damage, destroy or interfere with the integrity of the site. A person who illegally damages a site may be prosecuted or required to repair damage.

Landowners and other users with a legal entitlement may appeal the designation of lands on scientific grounds.

Landowners and other users with a legal entitlement will be compensated for actual loss of income arising from restrictions imposed as a result of designation.

DEHLG is the government department with responsibility for the designation and protection of wildlife habitats, species and areas of conservation interest. As part of their responsibility in relation to biodiversity and wildlife under the Wildlife Acts (1976 and 2000), the Minister's brief extends far beyond the habitats and species listed in the annexes of the Habitats and Birds Directives. For this reason, cSAC conservation plans may deal with species that are not mentioned in these annexes.

Reasons for Designation of Ardmore Head cSAC

HABITATS LISTED IN ANNEX I OF THE EU HABITATS DIRECTIVE	CONSERVATION VALUE
• **Vegetated sea cliffs of the Atlantic and Baltic coasts** (EU Habitat Code 1230)	The site contains a 1km stretch of steep to vertical cliffs, which are intact and largely undisturbed. The cliffs host breeding pairs of Chough, as well as a summer colony of Kittiwake, which is of national importance.
• **European dry heaths** (EU Habitat Code 4030)	A fairly small, but good, examples of maritime heath, grading into scrub and grassland. It contains typical flora and is relatively undisturbed.

Implications of Site Designation for Landowners and other Site Users

In most areas designated as cSACs, current practices will not have to change significantly.

In cases where users with a legal entitlement are required to change practices or restrict activities to protect the wildlife interest of the site, compensation will be payable based on actual loss of income.

If a user with a legal entitlement wishes to carry out certain activities, not covered by licence or consent from another statutory body, within the designated area, they must consult with, and get consent from, the Minister for the Environment, Heritage and Local Government. These activities are listed as "Notifiable Actions" for each habitat (see Appendix V).

The designation of the site can be appealed by landowners and legal users on scientific grounds. Details of the appeals procedure are also given in Appendix VI.

SITE DESCRIPTION

Location Including Site Boundaries

This site is situated on a small headland to the east of the village of Ardmore on the west Waterford coastline (Map 1).

Grid Ref.: N 76750; 219800

Latitude: N 51º56'20"

Longitude: W 07º42'32"

Area: 30 ha

Altitude Range: 0 m to 58 m

Townlands: Dysert

Ardmore Head cSAC, photo D. Dunnells.

Site Boundaries

The terrestrial boundaries of the site generally follow the cliff walk or field boundaries adjacent to it. These boundaries follow the original area identified as an Area of Scientific Interest. The seaward boundary was included to provide a protective zone around breeding seabird colonies. The westward boundary of the site contains dry heath and vegetated sea cliffs habitat.

Site Infrastructure

The main access through the site is along the cliff walk, a popular walking path and public right of way which winds across the site providing viewing over the two main headlands – Ardmore Head and Ram Head. The only buildings within the site are the ruins of St. Declan's church, two holy wells and an old World War Two watchtower. Ruins of a drilling platform, the 'Samson', are washed up below the cliffs at Ardmore Head.

Legal Status

Ownership

The terrestrial part of the site is in multiple private ownership. The foreshore and open marine waters up the high water mark are state-owned.

Designations of the Site

candidate Special Area of Conservation	Sitecode IE0002123	Published on 1st July 1999
proposed Natural Heritage Area	Sitecode 2123	Unpublished
Area of High Amenity	The cSAC is also listed as an Area of High Amenity in the Waterford County Development Plan, 1992.	

Past Status and Designation of the Site

The area was identified as a Geological Area of Scientific Interest (no. 9), for the presence of lead mines dating back to the mid 17th century, on Ardmore Head (Cowman, 1993).

Government Departments and Agencies

Department of the Environment, Heritage and Local Government (DEHLG)

DEHLG is the government department with responsibility for the protection and conservation of Ireland's natural heritage.

National Parks & Wildlife Service (NPWS)

NPWS is the section of the DEHLG responsible for maintaining the nature conservation value of the site. Periodic inspection of the site is carried out by the local Conservation Ranger.

Regional staff also participate in research and survey projects by collecting data on the site, provide advice to planning authorities on the impacts of development applications and provide an education and advisory service to the public (see Appendix VII) for further details of NPWS regional staff.

Waterford County Council	Waterford County Council is the planning authority for the site. As such they are obliged to ensure appropriate assessment of the implications of developments requiring planning permission that may have an impact, either individually, or in combination with other developments, on the designated area.
Environmental Protection Agency (EPA)	The EPA is an independent state sponsored body with a wide range of statutory duties including monitoring environmental quality and overseeing the performance by local authorities of their statutory environmental protection functions.
Department of Communications, Marine and Natural Resources (DCMNR)	The DCMNR is responsible for licensing and regulating fishing, aquaculture, commercial and other development below mean high water; and under Regulation 31 of the EU Natural Habitats Regulations, for ensuring that such activities in the cSAC do not adversely affect it. Monitoring functions are carried out by individual divisions of the department and by the executive agencies under its direction namely the Central and Regional Fisheries Boards, The Marine Institute and an Bord Iascaigh Mhara.

Local Authority Policy in relation to the Site

In the current Waterford County Development Strategy (2002), there is no specific reference to candidate SACs or any other statutory nature conservation designation. However, the policy document states that one of its objectives is to develop a comprehensive heritage programme for the county, with the support of NPWS and to establish bye-laws so that all new building developments will respect the culture and heritage of the County. A new County Development Plan is in preparation and it is proposed that it will list Ardmore Head as cSAC, SPA and pNHA and as an area of geological interest.

In the County Development Plan (1999), there is no reference to cSACs but Ardmore Head is shown on corresponding maps as an NHA and is listed as an ASI. The policy section states that "*it is the policy of the Council to protect all areas of scientific interest and their environs…. Broad scale policies for forestry, tourism and water management will be assessed for their ecological consequences*". The previous County Development Plan (1992) shows the coastal area as an Area of High Amenity. The zoning classification lists it as an area *"to provide for preservation and improvement of coastside amenity for day recreation and preservation of views and prospects over the coastline."*

Physical Features

Climate

The site is positioned adjacent to the open sea and the steep cliffs and heath covered headlands are fully exposed to prevailing winds, sea spray and ocean storms.

The closest synoptic weather station to the site is the Rosslare station, and 30-Year Average information for this station was obtained from the Met Eireann website and the full details are in Appendix III. In summary, the mean daily air temperature at the station is 10.1°C, ranging from an average low of 6.1°C in January to an average high of 15.0°C in July. The average annual rainfall is 877.1 mm, and the average daily duration of sunshine is 4.33 hours. Winds are predominantly from the south-west, with an average wind speed of 11.5 knots. There is an annual average of 10.7 days with snow or sleet recorded for the Rosslare station, but only 1.8 days where snow was still lying on the ground by 9am.

Geology & Geomorphology

The site is underlain by slightly metamorphosed siltstones of the Old Red Sandstone formation, which form part of the Ardmore Syncline (Herries Davies and Stephens, 1978). Geologically the sandstone has been removed, either through erosion or faulting, from the east of the site. Large sections of these layered sediments, which have been folded into dramatic undulating formations, can be viewed from the cliff walk. The sea cliffs are affected by erosion caused by wave action, resulting in the formation of numerous sea stacks and small islets.

Soils & Soil Processes

Soils in the site mainly comprise acid browth earths derived from mixed sandstone and limestone-rich glacial till (Gardiner and Radford, 1991).

Hydrology & Water Quality

The only surface water present within the site comes from small springs. Two holy wells have been developed over these springs – St. Declan's well just outside Ardmore village and Fr. O'Donnell's well on the western side of the site, along the coastal walk.

Biological Features

Habitats and Vegetation

Note: Throughout the conservation plan, habitats are named and described under two different systems: the Annex I habitats are as listed in the EU Habitats Interpretation Manual Version 15/2(1999), while all other habitats are as listed according to the classification system of 'A Guide to Habitats in Ireland' (Fossitt, 2000).

The following table lists the habitats within the site. The Annex I habitats of the Habitats Directive for which the site was selected are listed, with the relevant Guide to Habitats category also shown. The Indicative Habitat map for the site is presented in Map 2. The percentage area shown for each habitat type is based on the approximate geographic area of each habitat, as shown in Map 2.

Habitats Found within Ardmore Head cSAC

ANNEX I HABITAT TYPE	HABITAT CATEGORY	% AREA
Vegetated sea cliffs of the Atlantic and Baltic coasts (EU Code 1230)	Rocky sea cliffs (CS1)/ Sea stacks and islets (CS2)	25% (20%/ 5% respectively)
European dry heaths (EU Code 4030)	Dry siliceous heath (HH1)	23%
-	Open marine water (MW1)/ Sea inlets and bays (MW2)	33%
-	Dry-humid acid grassland (GS3)	10%
-	Scrub (WS1)	4%
-	Exposed rocky shore (LR1)/ Shingle beaches (LS1)	3%
-	Amenity grassland (improved) (GA2)	<1%
-	Non-calcareous springs (FP2)	<1%
-	Stone walls and other stonework (BL1)	<1%
-	Hedgerows (WL1)	<1% (not mapped)

Annex I Habitats:

Vegetated sea cliffs of the Atlantic and Baltic coasts (EU code 1230) *(25% of total site area or 8ha)*

The sea cliffs comprise over 1km of precipitous, nearly vertical cliffs of moderate height (up to 40m). The aspect of the cliffs is mostly east and south-facing, though there is also a small section facing north. Among the cliffs are numerous steep, narrow inlets, particularly to the south facing coasts, which provide ideal sheltered locations for breeding seabirds. There are many small ledges on all sections of the cliffs that provide suitable nesting and roost perches.

On cliffs tops and on some of the ledges, the vegetation consists of Rock Samphire (*Crithmum maritimum*), Sea Lavender (*Aster tripolium*), Sea Campion (*Silene maritima*), Thrift (*Armeria maritima*), Sea Beet (*Beta vulgaris*), Sea Spurrey (*Spergularia* spp.), Buck's-horn Plantain (*Plantago coronopus*) and Scurvy Grass (*Cochleria* spp.), with occasional Yarrow (*Achillea millefolium*) and Wild Carrot (*Daucus carota*).

There are numerous sea islets, sea stacks and areas of fallen bedrock adjacent to the cliffs, particularly on the south side of the site, the most exposed part.

European dry heaths (EU code 4030) *(23% of total site area or 7ha)*

The dominant terrestrial habitat is dry coastal heath (which is best viewed west of Ram Head). The heath is situated on relatively steep slopes overlooking the sea and is undisturbed by people and livestock. It is presently ungrazed.

Species present include an abundance of Heather (*Calluna vulgaris*), with Bell Heather (*Erica cinerea*), Western Gorse (*Ulex gallii*), Wood Sage (*Teucrium scordonia*) and Bent Grasses (*Agrostis* spp.). Areas not dominated by ericaceous species often contain a good diversity of herbaceous species. Species occurring include Wild Carrot, Milkwort (*Polygala serpyllifolia*), Perforate St. John's Wort (*Hypericum perforatum*), Scentless Mayweed (*Tripleurospermum maritimum*), Long-stalked Crane's Bill (*Geranium columbinum*), Devil's Bit Scabious (*Succisa pratensis*), Field Scabious (*Knautia arvensis*), Lady's Bedstraw (*Galium verum*), Burnet Rose (*Rosa pimpinellifolia*), Black Knapweed (*Centaurea nigra*), Wild Thyme (*Thymus* spp.). Several vetches also occur including Bush Vetch (*Vicia sepium*), Common Vetch (*V. sativa*), Meadow Vetchling (*Lathyrus pratensis*) and Common Bird's Foot Trefoil (*Lotus corniculatus*).

On Ardmore Head, Burnet Rose is more common and dry grassland is often interspersed with the heath areas creating a rough grassland/ heath mosaic. Maritime dry heath formation in the north-west corner of the site grades into scrub. In some of the headland areas between Ardmore and Ram Head, Western Gorse forms a dominant part of the vegetation.

Other Habitats:

Open marine water (MW1)/ Sea inlets and bays (MW2)

The open waters adjacent to the cliffs and surrounding all the sea stacks and islets are also included in the site. In addition to Grey Seals and other marine species, the open sea water is used by diving seabirds (see Bird Section below).

Small sea inlets occur along the coast. Several inlets to the west of Ram Head, such as Coolabeg and Coolamore, are bounded by very steep-sided cliffs that provide ideal, inaccessible ledges for nesting seabirds.

Dry-humid acid grassland (GS3)

On the eastern side of the site where heath merges into dry grassland, Cocksfoot (*Dactylis glomerata*), Bent Grasses and Fescues (*Festuca* spp.) typify vegetation, with some Bramble (*Rubus fruticosus* agg.), Black Knapweed and Wild Thyme also occurring. Tall grass swards north of the path also include Hare's Foot Clover (*Trifolium arvense*), Clovers (*T. pratense* and *T. repens*), Perennial Rye Grass (*Lolium perenne*), Black Medick (*Medicago lupilina*), Scarlet Pimpernel (*Anagallis arvensis*) and small numbers of Cowslip (*Primula veris*).

Where the underlying clay soil is exposed, the flora diversifies and includes aforementioned species indicative of coastal influence, such as Sea-Spurrey, Sea Campion, Scurvy Grass, Sea Beet and Buck's–horn Plantain.

Scrub (WS1)

At the north of the site near St. Declan's Well, small patches of very dense scrub occur. Species occurring include Hawthorn (*Crataegus monogyna*), Sycamore (*Acer pseudoplatanus*), Willow (*Salix* spp.), Bramble, Honeysuckle (*Lonicera pericylmenum*), Willowherb (*Epilobium* spp.), Bracken (*Pteridium aquilinum*), Wild Garlic (*Allium ursinum*), with some Wild Celery (*Apium graveolens*) and garden escapes such as *Rosa rugosa*. The understorey consists of Ramsons (*Allium odoratum*). This habitat provides good cover for birds such as Thrushes.

Exposed rocky shore (LR1)/ Shingle beach (LS1)	Bedrock shore is present below the cliffs throughout the site. A number of shingle beaches occur on the foreshore. Most foreshore areas are inaccessible except the area just to the east of Ardmore village.
Amenity grassland (improved) (GA2)	A small area of amenity grassland occurs around St. Declan's well and church. The grass around the church is mown regularly and is maintained by the County Council.
Non-calcareous springs (FP2)	Two small springs and one small stream running down from Fr. O'Donnells well occur within the site.
Stone walls and other stonework (BL1)	Ruins of old walls and historical buildings, such as St. Declan's Well and the Dysert Church, and a structure around Fr. O'Donnells well are included in the site. These are often colonised by White Stonecrop (*Sedum album*), Pennywort (*Umbilicus rupestris*), Ivy (*Hedera helix*), Ivy-leaved Toadflax (*Cymbalaria muralis*) and frequent ferns such as Harts-tongue Fern (*Asplenium scolopendrium*), Common Polypody (*Polypodium vulgare*) and Spleenwort Fern (*Asplenium* spp.). Old walls also form many of the boundary embankments within the site. Many are overgrown by heath and scrub.
Hedgerows (WL1)	A number of small hedgerows occur in the north-east part of the site, mainly comprised of species listed under Scrub.

Notable Flora:

No rare or protected plant species are known to occur within the site. The site was surveyed by Dr. Paul Green of the Botanical Society of the British Isles, the data from which are pending.

Fauna:

Invertebrates

No detailed survey information is available. However, the heath and dry grassland areas appear to attract a number of butterfly species. Lobster potting occurs in the open marine waters, often very close to the shore.

Fish

Atlantic Salmon (*Salmo salar*) occur within the site.

Reptiles

Common Lizard (*Lacerta vivipara*) occurs within heath habitat in the site.

Birds

A number of bird species listed on Annex I of the Birds Directive, and other notable species, occur within the site. The site is regularly monitored by the NPWS Conservation Ranger. Additional information is provided by the Seabird 2000 survey (Mitchell *et al.*, 2004), as well as reports by Birdwatch Ireland (detailed information is provided in Appendix IV; references in Appendix II).

Annex I Bird Species known to occur within the Site

Species Name	Scientific Name	Comments
Red-throated Diver	*Gavia stellata*	Have been recorded in open waters within the site.
Hen Harrier	*Circus cyaneus*	An occasional spring and autumn visitor (P. Smiddy, *pers. comm.*, 2004).
Peregrine Falcon	*Falco peregrinus*	Noted flying over on occasion, known to nest in adjacent area (P. Smiddy, *pers. comm.*, 2003).
Short-eared Owl	*Asio flammeus*	Has occurred on the site in winter (P. Smiddy, *pers. comm.*, 2004).
Chough	*Pyrrhocorax pyrrhocorax*	1-2 pairs nest on the southern cliffs west of Ram Head. A non-breeding flock of between 10 to 20 birds also occurs (recorded within the site and adjacent areas in the 2002 survey, P. Smiddy, *pers. comm.*, 2003)

Chough (Pyrrhocorax pyrrhocorax)

The site supports important colonies of breeding seabirds. The most numerous breeding species is the Kittiwake (*Rissa tridactyla*). The population has declined somewhat in recent years from >1000 pairs (1985-1989) to 522 pairs in 1999 (Mitchell *et al.*, 2004). However, the colony still constitutes 1.1% of an estimated national total of 49,160 pairs (Mitchell *et al.*, 2004) and represents a population of National Importance.

The low cliffs with many ledges are very suitable for nesting Kittiwakes, and also host nesting Fulmar (*Fulmarus glacialis*), Shag (*Phalacrocorax aristotelis*), Cormorant (*Phalacrocorax carbo carbo*), Herring Gull (*Larus argentatus*), Great Black-Backed Gull (*Larus marinus*), Guillemot (*Uria aalge*) and Razorbill (*Alca torda*) (See Appendix IV for more details).

The open sea water is used by many diving birds including Cormorant, Razorbill, Guillemot and Red-Throated Diver (*Gavia stellata*).

Breeding passerines, with a scarce or restricted range that breed on the coastal strip include Skylark (*Alauda arvensis*), House Martin (*Delichon urbica*), Meadow Pipit (*Anthus pratensis*), Rock Pipit (*Anthus spinoletta*), Stonechat (*Saxicola torquata*), Whitethroat (*Sylvia communis*), Linnet (*Carduelis cannabina*) and Reed Bunting (*Emberiza schoeniclus*). Common species such as Wren (*Troglodytes troglodytes*), Dunnock (*Prunella modularis*), Robin (*Erithacus rubecula*), Blackbird (*Turdus merula*) and Rock Dove (*Columba livia*) also breed at the site (P. Smiddy, *pers. comm.*, 2003). Other birds that have been noted within the site include Chiffchaff (*Phylloscopus collybita*), Goldcrest (*Regulus regulus*) and Blue Tit (*Parus caeruleus*). Of particular interest from recent

sightings, is the presence of two Annex I species, Short-Eared Owl (*Asio flammeus*) and Hen Harrier (*Circus cyaneus*). Seal pups have been noted in 2 different locations within the site.

Mammals

Grey Seal *(Halichoerus grypus*), an Annex II species under the Habitats Directive, are occasionally seen within open waters in the site in small groups or as individuals. Fox (*Vulpes vulpes*), Rabbit (*Oryctolagus cuniculus*), Irish Hare (*Lepus timidus hibernicus*), Badger (*Meles meles*) and Otter (*Lutra lutra*) frequent the site. Cetacean species are commonly seen off Ardmore Head (http://www.iwdg.ie/iscope/default.asp?county=1193&location=149&species=&resultsFormat=table&search1=Search). Harbour porpoise (*Phocaena phocaena*), recorded at the site, are listed on Annex II of the Habitats Directive. Dolphin species have been recorded but it is unknown if these are Bottle-nosed (*Tursiops truncatus*), also Annex II species. A pod of up to 20 Common Dolphins *(Delphinus delphis)* has been seen in the vicinity of the site, from Fr. O'Donnell's well. Irish Hare are listed as Internationally Important in the Irish Red Data Book (Whilde, 1993).

Land Use

Land use on the site

Conservation management — Birdwatch Ireland carry out regular seabird counts on sea cliffs within the site.

Amenity use and tourism — A walking path stretches all the way around the headland and is regularly used for walking by local residents and visitors. The Ardmore Enterprise group have produced a leaflet on historical monuments along the Cliff Walk and in the surrounding area. The historical monuments within the site, such as St. Declan's church and holy well are well-known tourist attractions. Whale and dolphin watching takes place on Ram Head.

Boating and fishing — Recreational fishing (angling) is carried out at a number of places along the base of the cliff, particularly during the summer months. The open marine waters are used for some lobster fishing, as well as drift netting for Atlantic Salmon on a seasonal basis (in June and July).

Other recreational use — Recreational boating and scuba diving occur within the site. The wreck of the Sampson is used as a platform for scuba diving training.

Land use adjacent to the site

Agriculture — Surrounding lands at the southern end of the site are primarily used for arable crops such as carrots and sugar beet, or as pasture for cattle, sheep and horses.

Residential and commercial dwellings — Residential development is spreading adjacent to the north-eastern part of the site (adjacent to Ardmore village). Several new houses have been built in recent years. There are currently plans to expand the Cliff Hotel, at the north-west corner of the site.

Tourism and recreation — Ardmore is a popular sea side resort with a large beach and adjacent caravan parks, which are used in summer.

Commercial fishing — Drift net fishing for Salmon, as well as lobster potting, is carried out in the sea surrounding the site.

Past human use

The site may have been grazed in the past, but no specific information is available on grazing regimes. The heath on the south-western end of the site has been burnt in the past to control scrub vegetation.

The lookout post overlooking Ram Head was built in 1940 and used during World War II by coast watch personnel to log all ships and aircraft that passed. The cliff area was used as a lookout by the coastguards. A coastguard station was built adjacent to the site in 1867 and was manned until 1922.

Recorded Monuments and Other Features

St. Declan founded a seminary in Ardmore in circa 416 AD and the ruins of the church (Monument No. WA 040-11, Grid Ref 21984; 7729 in Dysert townland) and holy well date back to this period.

CONSERVATION VALUE OF ARDMORE HEAD cSAC

For a relatively small site, the cSAC contains a good diversity of habitats, and hosts several bird species of interest. Overall, the Annex I Habitats which comprise over 48% of the site area, are relatively undisturbed and of high ecological value.

The European dry heaths present in the site would appear to be a fairly typical example of the type of shrubby dry heath that occurs on the south coast. Overall, the site appears to be representative of the Atlantic *Erica- Ulex* heaths, that is, heaths of the Atlantic margins rich in gorse. The habitat is quite undisturbed as it is ungrazed, generally unburnt, and contains a good diversity of species typical of maritime heath. Encroachment of scrub growth due to lack of grazing is the only factor of concern at present.

The vegetated sea cliffs are a good example of the habitat, supporting a sparse but typical flora for cliffs on the south-east/south coasts of Ireland. They appear to be in a natural state and are under no apparent threat apart from natural erosion, which does not appear a serious problem. They contain a number of small ledges, crevices and sheltered fissures that provided suitable nesting habitats for resident and migrant bird species.

The presence of several Annex I bird species, including Chough, Peregrine, Red-Throated Diver, Hen Harrier and Short-eared Owl as well as a breeding colony of Kittiwake of National Importance, adds to the conservation interest of the site (See Appendix IV for additional information). The long-term monitoring of the Kittiwake population adds to the scientific importance of the site.

MANAGEMENT FRAMEWORK

Conservation Objectives

European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status areas designated as candidate Special Areas of Conservation. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the EU Habitats Directive, favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, is stable or increasing, and
- the ecological factors that are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable as defined below.

The favourable conservation status of a species is achieved when:

- population data on the species concerned indicate that it is maintaining itself, and
- the natural range of the species is neither being reduced or likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective 1:	To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status; vegetated sea cliffs (25%) and European dry heaths (23%).
Objective 2:	To maintain other habitats at favourable conservation status, including open marine waters (33%), dry-humid acid grassland (10%), scrub (4%), exposed rocky shore and shingle beaches (3%), amenity grassland (<1%), non-calcareous springs (<1%), stonewalls and other stonework (<1%), hedgerows (<1%) and sea inlets and bays (part of 33% open marine water).
Objective 3:	To maintain the populations of notable species at favourable conservation status, including Chough, Peregrine Falcon and sea bird colonies that occur within the site.
Objective 4:	To increase public awareness and appreciation of the conservation value of the site.

Objective 5: To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

Management Issues

While many activities in or adjacent to the site have the potential to cause deterioration/disturbance, it is important to determine the significance of such activities relative to the conservation objectives at a particular site. To that end, all known potential environmental effects of the sites principal activities (in alphabetical order) have been listed and the biological and chemical impacts that may cause change to the biological communities present have been described.

- **Amenity use**
- **Need for further scientific research**
- **Residential and other development in adjacent areas**
- **Value as an educational resource**

Amenity use

Amenity and low intensity recreational use, such as walking, is compatible with the conservation interests of the site, but should not have a detrimental impact on habitats or species of interest. Amenity use is cited as a primarily positive modifier in the site. The fact that the site is regularly used and appreciated by so many local residents and visitors is a prime motivation for its continued conservation.

The presence of a walking path along the top of the cliff could pose a threat to the cliff-top vegetation through trampling or burning accidents, but at present visitor pressure is low. In addition to low visitor pressure, the Ardmore Enterprise Co-op are involved in maintaining the cliff walk on a voluntary basis. The group represents landowners and interested parties who also provide information on the cliff walk and features of interest along it and maintain some of the fences and paths along the walk, in conjunction with the County Council. Most walkers tend to stay on the path because of the precipitous nature of the cliffs, and do not venture close to nesting bird colonies. Erosion of the paths is not a problem at present. There is occasional uncontrolled burning within the site, but this generally only occurs adjacent to the path.

Need for further scientific research

Apart from monitoring of selected bird species, such as the Kittiwake colony, there is incomplete information on the biodiversity of the site.

Areas of dry grassland and heath/grassland mosaic appear to host a good diversity of species and warrant further botanical investigation. A number of plants species of interest, such as Cowslip, occur in dry grassland habitat on Ram Head and in an area of rough grassland around the watchtower (currently outside the site). The dry heath and vegetated sea cliffs west of the current site boundary which extend to Goat Island, appear to be of cSAC quality.

In some parts of the site (e.g. between Ardmore village and Ram Head), dry heath habitat is possibly being affected by scrub encroachment, which if allowed to continue, could reduce the area of Annex I habitat. Scrub encroachment needs to be monitored. It is easy to gain access to most of the terrestrial part of the site, so given adequate resources, future research and monitoring are feasible.

There is also no data to evaluate the status of marine and intertidal habitats, or marine fauna such as Grey Seal, within the site.

Residential and other development in adjacent areas

Recent development has occurred adjacent to the cSAC, as former agricultural land has been rezoned for new housing. This has resulted in improved access to the site, and increasing the recreational and amenity pressure on it. The road up to the watchtower (formerly a rough dirt track) is now accessible by cars which have uncontrolled access to the field adjacent to the sea cliffs. There are no distinctive field boundaries separating this area from the cSAC. Increased access poses a threat through increased usage of the site, trampling and other damage to habitats, and disturbance to wildlife species, particularly to nesting bird colonies during the summer months, when visitor activity is higher. Vehicular access may also increase the level of littering and vandalism within the site.

Value as an educational resource

The site is of high conservation value due to the undisturbed and natural state of its habitats, and a range of important species of flora and fauna, e.g. seabird colonies, marine and terrestrial mammals. The site is also in a very scenic area with a wealth of historical features. There is well organised community support for controlled use and conservation of the site. Therefore, the cSAC has good potential as a local educational resource. With the involvement of NPWS, it could be developed as such, in consultation with relevant user groups, such as the Ardmore Tidy Towns and Millennium Committee, 2000, who have erected interpretative signs in Ardmore village describing the birds commonly seen on Ardmore Strand.

General Strategies

Specific strategies that relate to the above objectives are outlined below. However, there are a number of strategies that relate to the site as a whole. These are as follows:

Implement plan

DEHLG will seek to ensure that the aims of this conservation plan are achieved through:

- liaison with the landowners, relevant authorities and interested parties
- implementation of REPS or DEHLG farm plans, which will use this document as a guideline for prescribing management on a farm by farm basis, and also will ensure that the agreed prescriptions for the relevant habitats are adhered to
- enforcement of Regulations under the Habitats/Birds Directives and the Wildlife Acts
- enforcement of other relevant legislation such as the Environmental Impact Assessment and Local Planning Acts

Establish a monitoring regime

The monitoring regime for the site will comprise:

Scientific monitoring Monitoring of the conservation status of the vegetated sea cliffs, European dry heaths and Annex I bird species will be done by, or on behalf of, the staff of the Monitoring Section of the NPWS or staff working to NPWS in accordance with the procedures laid down by that section.

Protocols for monitoring Ardmore Head cSAC will be developed, in consultation with other agencies where appropriate, to determine if the site is being maintained at favourable conservation status.

Site surveillance Regular inspection of the site by the NPWS staff, with special attention to the vegetated sea cliffs, European dry heaths, Annex I bird species and sea bird colonies will identify any major changes, damaging operations, or threats should they arise.

Enforce notifiable actions

Certain activities may be restricted in SACs. Notifiable Actions for particular habitats and species are listed in Appendix IV of this plan. Consent from the Minister may be required before these actions may be carried out within the designated area For example, creation of new tracks, dumping, burning or storing of materials, operation of commercial recreation facilities (e.g. pony trekking), grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung and reclamation, infilling, ploughing and land drainage are relevant notifiable actions for the site.

Specific Strategies

Objective 1.

To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status; vegetated sea cliffs (25%) and European dry heaths (23%).

Strategies:

1.1.	**Maintain European dry heaths**	The current extent of dry heath should be maintained, and scrub growth must be prevented from encroaching on this habitat. The extent of heath will be assessed and monitored during regular patrolling (and by use of aerial photographs).
1.2.	**Monitor impact of amenity use**	NPWS will monitor the impact of amenity use of the site during site surveillance work, to ensure that activities do not cause damage. NPWS will liaise with the Local Authority and landowners concerning the maintenance of paths to minimize trampling of adjacent habitats.
1.3.	**Maintain vegetated sea cliffs**	The cliffs are not currently threatened in any way except from natural processes of erosion. A strategy of non-intervention will apply.
1.4.	**Conduct further survey work**	NPWS will conduct further ecological surveys of heath and vegetated cliff habitat to the west of the current cSAC to determine if they are of suitable quality to merit inclusion in the site.

Objective 2.

To maintain other habitats at favourable conservation status, including open marine waters (33%), dry-humid acid grassland (10%), scrub (4%), exposed rocky shore and shingle beaches (3%), amenity grassland (<1%), non-calcareous springs (<1%), stonewalls and other stonework (<1%), hedgerows (<1%) and sea inlets and bays (part of 33% open marine water).

Strategies:

2.1.	**Maintain other terrestrial habitats**	The area of lowland dry grassland and scrub should be monitored as per Strategy 1.1 to ensure that it also does not encroach on heath habitat. For all other habitats, namely streams and springs, old walls and hedgerows, a strategy of non-intervention will apply.
2.2.	**Maintain marine and intertidal habitats**	Activities affecting open marine waters, small inlets and bays and bedrock shore within the site are regulated by the DCMNR. NPWS staff will liaise with them in relation to any foreshore applications within the site, and will collate and review this information where necessary.

Objective 3.

To maintain the populations of notable species on the site at favourable conservation status, including Chough, Peregrine Falcon and sea bird colonies that occur within the site.

Strategies:

3.1. Maintain bird populations

Strategies listed under Objectives 1 and 2 that aim to maintain appropriate habitats for qualifying species are the main mechanisms for conserving bird species of interest.

3.2. Continue to monitor bird usage

Bird monitoring of Annex I species is carried out by the NPWS and will continue. NPWS will also continue to encourage scientific research and monitoring programmes by other interest groups such as Birdwatch. Birdwatch Ireland will monitor the Kittiwake colony under their Breeding Seabird survey programme.

Objective 4.

To increase public awareness and appreciation of the conservation value of the site.

Strategies:

4.1. Provide information for interpretative displays

NPWS will provide information on the species and habitats of conservation interest within the site and liaise with local interest groups and the Local Authority on the best method and locations to publicly display this information.

4.2. Publish a leaflet on nature conservation of the site

NPWS will compile and publish a leaflet on nature conservation of the site, covering issues such as the importance of habitats and species within the site.

Objective 5.

To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

Strategies:

5.1. Liaise with interested parties

NPWS will strive to initiate and maintain effective liaison with landowners, legal users (particularly through the Liaison Committee), relevant authorities and interested parties on achieving the objectives for conservation of the site.

5.2. Liaise with REPS planners

REPS planners should consult with local NPWS staff when they are developing plans for land within the site.

Zoning

Note: Zoning is the division of a nature conservation site and neighbouring areas into a number of sub-units. Four types of zones are identified (not necessarily all occurring within a site): A, B and C are zone types within the site. D is a zone type outside the site where activities may have an impact on the site. The relevant strategies are listed for each site.

Zone A: A Natural Zone

Areas of high conservation value, that require no or little management intervention.

1A: NON-INTERVENTION AREAS

1A1: Vegetated sea cliffs, sea stacks and islets, open marine water, sea inlet and bays, exposed rocky shore, shingle beaches, non-calcareous springs, stonewalls and other stonework and hedgerows

Strategies 1.2-1.4, 2.1, 2.2, 3.1, 3.2, 4.1, 4.2, 5.1, 5.2 and the general strategies apply.

2A: MAINTENANCE AREAS WITH LIMITED MANAGEMENT INTERVENTION

2A1: European dry heaths, dry grassland and scrub

Strategies 1.1-1.4, 2.1, 3.1, 3.2, 4.1, 4.2, 5.1, 5.2 and the general strategies apply.

Zone C: Intensive use Zone

Intensively used areas/infrastructure, which form an integral part of a nature conservation site.

C1: Amenity grassland and old walls at St Declan's Well and church, look-out post and Fr O'Donnell's holy well

Strategies 2.1, 4.1, 4.2, 5.1, 5.2 and the general strategies apply.

Zone D: Impact Zone

Areas outside the site where activities may have an impact on the site.

D1: Area around watchtower which currently accessible to cars

Strategies 3.1, 4.1, 4.2, 5.1 and the general strategies apply.

Summary of Specific Strategies

Note: It is implicit with all the strategies presented that their implementation is dependent on availability of adequate resources in terms of staff, expertise and financial resources. Also, that cooperation with landowners and other key stakeholders is key to achieving the stated objectives.

	Strategy	Action required	Who to implement	When/Duration/ Frequency	Estimated Total Cost	Additional Resources needed
1.1	Maintain European dry heaths	Assess and monitor extent of dry heath during regular patrolling (and by use of aerial photographs).	Conservation Ranger (CR)/ Regional Management (RM)	Once a year		
1.2	Monitor impact of amenity use	Monitor amenity use of the site to ensure that activities do not cause damage and trampling.	CR	Once a year, during summer months		
1.3	Maintain vegetated sea cliffs	No intervention required.	-	-		
1.4	Conduct further survey work	Survey areas of potential cSAC quality outside the current site boundaries.	CR/ Designations Unit	By 2005		
2.1	Maintain other terrestrial habitats	Monitor extent of scrub to ensure that it also does not encroach on heath habitat.	CR	Once a year		
2.2	Maintain marine and intertidal habitats	Liaise with DCMNR regarding foreshore licences.	NPWS/ DCMNR			
3.1	Maintain bird populations	See Strategies 1.1-1.4 and 2.1-2.2.	-	-		
3.2	Continue to monitor bird usage	Continue to monitor Annex I species. Continue to encourage scientific research and monitoring programmes by other interest groups (eg Birdwatch).	CR/Birdwatch	Within 5 year period of the plan.		
4.1	Provide information for interpretative displays	NPWS will provide information on the species and habitats of conservation interest within the site and publicly display this information.	CR/RM	Within 5 year period of the plan.		
4.2	Publish a leaflet on nature conservation of the site	NPWS will compile and publish a leaflet on nature conservation of the site.	CR/RM	Within 5 year period of the plan.		
5.1	Liaise with interested parties	Maintain effective liaison with interested parties regarding the achievement of conservation objectives.	CR/RM	On-going.		
5.2	Liaise with REPS planners	REPS planners must consult with NPWS when developing plans for land within the site.	REPS Planner/ CR	Where necessary		

APPENDIX I: GLOSSARY

ALTITUDE - Vertical height above sea level.

ANNEX I - of the EU Birds Directive, lists birds that are strictly protected so that they cannot be killed, captured, disturbed or traded.

ANNEX I - of the EU Habitats Directive, lists habitats including priority habitats for which SACs have to be designated.

ANNEX II - of the EU Habitats Directive is a list of species for which SACs have to be designated.

AQUACULTURE - The use of cages, tanks, troughs or artificial substrates to raise invertebrates (e.g. oysters, mussels or clams) or finned fish in marine or freshwater environments. (This does not cover lakes which have been stocked for angling). It can occur onshore, intertidally or subtidally and be intensive or extensive in nature. Intensive aquaculture involves growing stock at high densities with the aid of artificial structures (e.g. caged fin-fish, suspended mussels, clams under nets and oysters in bags). In extensive aquaculture stock is usually grown on the seabed at lower densities, harvesting involves simply collecting marine organisms (wild fish, shellfish, worms and seaweed).

AQUATIC ENVIRONMENT – Rivers, streams, lakes, ponds, springs and features that depend on natural waters e.g. marsh, bogs and wetlands.

ARABLE LAND – Farmland that includes all areas growing cereals or other crops, ploughed and planted annually.

ASIs - Areas of Scientific Interest. Areas that were identified in the 1970s as being of conservation interest. The NHA designation developed from ASIs.

BIODIVERSITY – A general term used to describe all aspects of biological diversity, including: the number of species present in a given environment; the genetic diversity present within a species; the number of different ecosystems present within a given environment.

BIRDS DIRECTIVE (Council Directive 79/ 409/ 2nd April 1979) - Under this Directive Ireland is required to conserve the habitats of two categories of wild birds: 1) Listed rare and vulnerable species and 2) Regularly occurring migratory species. The Directive also obliges Ireland to conserve wetlands, especially those of international importance and regulates the hunting and trading of wildbirds. It was transposed into Irish legislation by the EU (Natural Habitats) Regulations, 1997.

CALCAREOUS - Made of or containing calcium carbonate ($CaCO_3$) and therefore alkaline, limestone for example

CATCHMENT - An area of land draining to a defined point. The term river catchment refers to the area of land that drains into a particular river system.

CONSERVATION STATUS - The sum of the influences acting on a habitat and its typical species that may affect its long term distribution, structure and functions. Also refers to the long-term survival of its typical species within the European territory of the Member States.

DEHLG - Department of Environment, Heritage and Local Government

DEVELOPMENT PLANS - Local Authorities (Co. Councils & Corporations) are obliged under statute to produce a document which sets out the planned development of their areas for a given number of years. In the future Local Authorities will be asked to incorporate designated NHAs, SACs and SPAs classifications into their development plans.

DIVERSITY - see biodiversity.

DCMNR – Department of Communications, Marine and Natural Resources

DRIFT NET - A large fishing net that is allowed to drift with the tide or current.

ECOLOGY - The study of the interactions between organisms, and their physical, chemical and biological environment.

ENCROACHMENT - The invasion of a species (usually plants) into areas previously uncolonised. This term is often used when an undesirable species advances at the expense of a desirable species or habitat.

ENVIRONMENT – The biological and physical conditions in which an organism lives.

EPA – Environmental Protection Agency

EROSION - The processes whereby the materials of the Earth's crust are dissolved, or worn away and simultaneously moved from one place to another by natural agencies which include weathering, solution, corrosion and transportation.

EUROPEAN BIRDS DIRECTIVE (79/ 409 - 2nd April 1979) - See Birds Directive.

FAUNA - Animal life.

FAVOURABLE CONSERVATION STATUS - The conservation status of a natural habitat will be taken as "favourable" when: its natural range and areas it covers within that range are stable or increasing, and the specific structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future, and the conservation status of its typical species is favourable.

FLORA - plant life.

FORESHORE – That part of the shore below the high water. The foreshore is in most cases owned by the State.

FORMATION – A geological term for a body of rocks having easily recognised boundaries that can be traced in the field, and large enough to be represented on a geological map as a practical and convenient unit for mapping and description.

GEOMORPHOLOGY – The study of the form and structure of the landscape, which is shaped by the underlying geology.

HABITAT - Refers to the environment defined by specific abiotic and biotic factors, in which a species lives at any stage of its biological cycle. In general terms it is a species home. In the Habitats Directive this term is used more loosely to mean plant communities and areas to be given protection.

HABITATS DIRECTIVE - (Council Directive 92/43/EEC). The Directive on the conservation of Natural Habitats and of Wild Flora and Fauna. This Directive seeks to legally protect wildlife and its habitats. It was transposed into Irish legislation by the EU (Natural Habitats) Regulations, 1997.

HERBACEOUS - Seed plants with non-woody green stems.

LATITUDE – The angular distance measured in degrees north or south of the equator.

LEPIDOPTERA - Moths and butterflies.

LIAISON COMMITTEE - This is a special group set up to discuss the contents of a conservation management plan and the implementation of the plan. The committee will include representation of landowners, right-holders and other interest groups. It shall be the function of the committee to advise NPWS managers on the interaction between site conservation management and local interests. The Liaison Committee will nominate a member to the official Appeals Board which will consider appeals against site designation and other issues. The Liaison Committee will be independent from the NPWS.

LIMESTONE - Sedimentary rock composed predominantly of calcium carbonate, often containing fossils.

MANAGEMENT - a) Controlling processes within a site (this can be actively carrying out work or can be doing nothing), preferably in accordance with a conservation plan. - b) The practical implementation of the management plan. - c) Undertaking any task or project identified in the management plan, including the identification of new opportunities.

MARINE - Found in, or relating to the sea.

MARITIME - Relating to, or near the sea.

MONITORING – A repeat or repeats of a survey using the same methodology. Designed to look for or measure specific changes and the rate or extent of change. Used to check the "health" quantity or quality of a habitat or species.

MOSAIC - Used to describe habitats that occur together and cannot easily be mapped separately.

MULTIPLE PRIVATE OWNERSHIP- Lands that are divided into areas which are privately owned. There must be more than one private landowner under this heading. (lands in commonage are not described under this heading).

NATIONAL PARKS AND WILDLIFE SERVICE (NPWS) – the section of the Environment Infrastructure and Services division of the Department of Environment, Heritage and Local Government with responsibility for nature conservation and implementation of Government conservation policy as enunciated by the Minister for the Environment, Heritage and Local Government.

NATURA 2000 - A network of sites across the European Community, selected for the purpose of conserving natural habitats and species of plants and animals which are rare, endangered or vulnerable in the European Community. SACs and SPAs form the Natura 2000 network.

NATURAL HABITAT - Can be aquatic or terrestrial areas distinguished by geographic, abiotic and biotic features, whether entirely natural or semi-natural.

NHAs - Proposed Natural Heritage Areas. These are areas that are important for wildlife conservation. Some of these sites are small, such as roosting areas for rare bats; others can be large such as a blanket bog or a sand dune system.

NOTABLE SPECIES - Plants or animals which are worthy of mentioning either because they are particularly typical of a habitat, or because they are rare/ scarce/ atypical.

NOTIFIABLE ACTIONS - Actions specified under the cSAC regulations and are listed in the appendices of a conservation plan. These are actions which could cause damage to the site, and for which prior approval is required before they can be carried out.

NPWS - National Parks and Wildlife Service

PATROL MONITORING - Regular monitoring of a site usually carried out by the Conservation Ranger to check for damaging activities and to carry out other activities such as to assess the vegetation, to assess the effectiveness of the management regime on the condition of the site, etc.

PERENNIAL - Referring to plants that live for two years at least.

PRIORITY HABITAT - A subset of the habitats listed in Annex I of the EU Habitats Directive. These are habitats which are in danger of disappearance and whose natural range mainly falls

within the territory of the European Union. These habitats are of the highest conservation status and require measures to ensure that their favourable conservation status is maintained.

PROGRAMME - When several closely related tasks are grouped together to achieve an objective.

RARE - An ecological term applied to distribution of species when assessed on a national grid reference system. The assessment is made on the basis of the number of occupied 10 km National Grid squares. A species is described as rare if has been recorded in to 3-10, 10 km squares.

RED DATA BOOK – A register of threatened species that includes definitions of degrees of threat.

RED DATA BOOK 2 (mammals, birds, amphibians and fish) - identifies those species threatened in Ireland or those species whose populations are considered to be of international importance, though not necessarily threatened in Ireland. It details the current state of Irish vertebrates and provides a concise summary of the various legislation for each species.

REPS - Rural Environmental Protection Scheme. This is an Agri-Environmental programme which seeks to draw up agreements with farmers, according to the type of farming, landscape and features on the land. The overall objectives of REPS are to achieve: the use of farming practices which reduce the polluting effects of agriculture by minimising nutrient loss- an environmentally favourable extensification of crop farming, and sheep farming and cattle farming; - ways of using agricultural land which are compatible with protection and improvement of the environment, the countryside, the landscape, natural resources the soil and genetic diversity; - long-term set-aside of agricultural land for reasons connected with the environment; - land management for public access;- education and training for farmers in types of farming compatible with the requirements of environmental protection and upkeep of the countryside.

REPTILES - Cold-blooded vertebrates, most of which are terrestrial, having dry horny skin with scales or plates. Most reptiles lay eggs that have a leathery skin, although some are ovoviviparous.

SACs - Special Areas of Conservation have been selected from the prime examples of wildlife conservation areas in Ireland. Their legal basis from which selection is derived is The Habitats Directive (92/43/EEC of the 21st May 1992). SAC's have also been known as cSAC's which stands for "candidate Special Areas of Conservation", and pcSAC's which stands for "proposed candidate Special Areas of Conservation."

SCARCE - This is an ecological term, which is applied to distribution of species when assessed on a national grid reference system. The assessment is made on the basis of the number of occupied 10 km National Grid squares. Scarce applies to 11-25, 10 km squares in this context.

SCIENTIFIC MONITORING - this is carried out by the monitoring section of the NPWS, whose function here is to ensure that the favourable conservation status of the site is maintained and where possible improved.

SEDIMENT - Solid particles that can originate by the weathering and erosion of pre-existing rock, by chemical precipitation from water, or by the breakdown of organisms.

SPAs - Special Protection Areas for Birds are areas which have been designated to ensure the conservation of certain categories of birds. Ireland is required to conserve the habitats of two categories of wild birds under the European Birds Directive (Council Directive 79/ 409/ 2nd April 1979). The NPWS is responsible for ensuring that such areas are protected from significant damage.

SPECIES - the lowest unit of classification normally used for plants and animals.

STRATEGY - A course of action or a broad approach towards achieving an objective . It is the general thrust of management towards achieving an objective. It is a description of how the objective is to be achieved.

SURVEY - a) Study/visit to produce an inventory of what is present / record a situation.- b) Establishing a baseline (study).

SWARD - Refers to the vegetation cover of low growing plants communities, such as grasslands.

SYNCLINE – Geological term to describe structural folds in rock formations that creates a basin from layers of rock.

TERRESTRIAL - A term used to refer to living on land. The opposite of aquatic.

TILL - Unconsolidated, unsorted glacial deposits.

UNDERSTOREY - The plant layer below the tree canopy in a woodland.

ZONING - The division of a nature conservation site (& neighbouring lands) into a number of sub-units. Within each zone the management prescriptions will be reasonably uniform and will differ in type or intensity from the other zones in the plan.

APPENDIX II: REFERENCE MATERIAL

Map References:

O.S. 1/2 inch (1:126,720) map: 22

O.S. Discovery (1:50,000) map: 82

O.S. 6 inch (1: 10,560) map: WA 040

Databases :

NHA database, NPWS, The Department of Environment, Heritage and Local Government, 7 Ely Place, Dublin 2.

Natura 2000 database, NPWS, The Department of Environment, Heritage and Local Government, 7 Ely Place, Dublin 2.

I-WeBS Database, BirdWatch Ireland, Rockingham House, Newcastle, Co Wicklow

Photographic Coverage:

Aerial photo No. 488. Date: 2000. NPWS, The Department of Environment, Heritage and Local Government, 7 Ely Place, Dublin 2.

Relevant Legislation:

S.I. No. 39 of 1976: Wildlife Act 1976

S.I. No. 38 of 2000: Wildlife (Amendment) Act 2000

S.I. No. 94/1997: European Communities (Natural Habitats) Regulations 1997.

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APPENDIX III: CLIMATE

ROSSLARE
monthly and annual mean and extreme values
1961-1990

TEMPERATURE *(degrees Celsius)*	*jan*	*feb*	*mar*	*apr*	*may*	*jun*	*jul*	*aug*	*sep*	*oct*	*nov*	*dec*	*year*
mean daily max.	8.2	7.9	9.3	10.9	13.2	15.9	17.9	17.9	16.3	13.8	10.6	9.1	**12.6**
mean daily min.	3.9	3.8	4.3	5.6	7.9	10.4	12.1	12.2	10.8	9	5.9	4.8	**7.6**
mean	6.1	5.9	6.8	8.3	10.5	13.2	15	15	13.6	11.4	8.2	7	**10.1**
absolute max.	12.7	13	14.2	20.1	20.3	25.4	26.2	25.9	21.5	19.2	15.7	14	**26.2**
absolute min.	-4.4	-4.1	-2.5	-1	-0.3	4.7	5.2	6.2	2.6	0.7	-2.5	-3.1	**-4.4**
mean no. of days with air frost	2.4	2	1.1	0.3	0	0	0	0	0	0	0.6	1.6	**8**
mean no. of days with ground frost	11	8.6	7.2	4.4	1.3	0	0	0	0.1	0.8	5.6	8.5	**47.4**
RELATIVE HUMIDITY *(%)*													
mean at 0900UTC	86	85	84	82	81	82	82	84	84	86	85	86	**84**
mean at 1500UTC	81	79	76	76	77	78	77	78	77	80	79	82	**78**
SUNSHINE *(hours)*													
mean daily duration	1.94	2.47	3.87	5.74	6.88	6.59	6.29	5.86	4.79	3.27	2.5	1.75	**4.33**
greatest daily duration	8.2	9.8	11.8	13.4	15.4	15.8	15.9	14	12.8	10.2	8.6	7.3	**15.9**
mean no. of days with no sun	11	8	5	3	1	2	1	2	3	6	9	11	**61**
RAINFALL *(mm)*													
mean monthly total	94.8	69.9	67.8	55.7	55.8	50.6	50.7	68.7	73.3	94.9	97.1	97.8	**877.1**
greatest daily total	44.9	33.4	48.9	27.9	31	32.6	79.1	61	63.6	54.8	56.7	44.8	**79.1**
mean no. of days with >= 0.2mm	18	15	16	14	14	13	11	13	14	16	16	17	**176**
mean no. of days with >= 1.0mm	14	11	12	10	10	8	8	9	10	12	13	13	**129**
mean no. of days with >= 5.0mm	7	5	5	4	4	3	3	4	5	6	6	7	**59**
WIND *(knots)*													
mean monthly speed	12.9	12.8	12.4	11.8	11.4	10.1	9.5	10	10.7	11.6	12.1	12.8	**11.5**
max. gust	76	76	66	75	57	51	50	56	72	87	71	80	**87**
max. mean 10-minute speed	46	44	42	52	35	38	35	37	47	50	45	50	**52**
mean no. of days with gales	2.5	1.5	1.1	1.3	0.3	0.2	0.1	0.2	0.5	0.9	1.3	1.9	**11.7**
WEATHER *(mean no. of days with...)*													
snow or sleet	2.7	3.7	1.9	0.8	0.1	0	0	0	0	0	0.2	1.3	**10.7**
snow lying at 0900UTC	0.8	0.7	0.2	0	0	0	0	0	0	0	0	0.1	**1.8**
hail	1.8	1.1	2.5	2.1	1	0.3	0	0	0.1	0.4	1.2	1.2	**11.8**
thunder	0.4	0.2	0.1	0.4	0.8	1	1	0.7	0.6	0.5	0.7	0.3	**6.7**
fog	2	2.2	3.2	4.2	3.2	4.4	5	4.6	3.9	2.5	1.7	1.6	**38.5**

Source: Met Eireann, Rosslare Meteorological Station, Grid Reference: T137122 @ 2m

APPENDIX IV: ADDITIONAL BIRD SPECIES INFORMATION

Annex I Species

Chough (*Pyrrhocorax pyrrhocorax*) - 1-2 pairs nest on the southern cliffs (west of Ram Head) of this site. The cliffs and ledges within them (and also further west) provide good nesting sites for Choughs.

The coastal habitats and surrounding agricultural lands around Ardmore Head appear to offer ample areas of short sward grassland and heath that Chough and other birds, such as Finches, use as foraging areas. Chough are generally associated with low intensity, pastoral agriculture systems which contain a variety of semi-natural habitats, such as small patches of cultivation, arable stubble, fallow land, etc. (Pienkowski, 1999). The presence of several pairs in this general area indicates that the ecological requirements of the species are being met in the area and within the site. In addition to breeding birds, flock birds are regular along this stretch of coast. Chough in south-eastern Ireland are not isolated from the main range, and the prospects are good for this species, as long as current low intensity management of the site continues.

According to the most recent Chough Survey (2002-03, Birdwatch Ireland), the total number of pairs in Ireland was estimated at 828 pairs and 770 individual birds, with a total of 2,426 birds, so this site supports less than 0.1% of the national population.

Peregrine Falcon (*Falco peregrinus*) - There is usually one occupied eyrie. In the 2002 survey a pair bred successfully and a single adult bird was seen at another cliff on one occasion only. (P. Smiddy, pers. comm., 2003).

Red-throated Diver (*Gavia stellata*) - Noted in offshore waters (NHA survey notes, 1995). No other data available.

Short-eared Owl (*Asio flammeus*) - Noted within coastal area (John King, 2003). No other data available.

Seabirds

Ardmore/Ram Head has important colonies of breeding seabirds. Data from the *Seabird 2000: Census*, carried out June 1999 by Pat Smiddy and Paul Walsh (Birdwatch, Ireland, 2004) is as follows:

Breeding Seabird Numbers at Ardmore Head (Smiddy and Walsh, 2004)

Common Name	Scientific Name	Comment
Fulmar	*Fulmarus glacialis*	99 Apparently Occupied Sites (AOS)
Herring Gull	*Larus argentatus*	45 Apparently Occupied Nests (AON)
Great Black-backed Gull	*Larus marinus*	- 2 (AON)
Kittiwake	*Rissa tridactyla*	522 AON

The area was checked for Black Guillemots in spring 1998, although none were found. Thus the Kittiwake colonies are the greatest seabird interest, although the Herring Gull population is worthy of note given the massive declines elsewhere on the east coast.

Kittiwake (*Rissa tridactyla*) - McGrath & Walsh (1999) and Walsh (*pers. comm*. 2003) have provided recent information regarding the Kittiwake population and other seabirds. The sea cliffs host a large breeding colony for Kittiwake. The low cliffs with many ledges are very suitable for nesting Kittiwakes.

Kittiwake - Apparently Occupied Nests (AONs)

Year	AONs
1985	1084
1987	1123
1989	805
1991	770
1993	797
1999	522

The decline in AONs since 1987 is generally considered to be due to changes in food supply (Thompson *et. al.*, 1999). The Kittiwake population from 1989 to 1993 was close to 800 AONs, which comprised 1.59% of an estimated national total of 50,200, as given by Lloyd *et al.* (1991). In 1999, the colony dropped to c. 522 (Mitchell *et al*., 2004).

Fulmar (*Fulmarus glacialis*) - 130 occupied sites in the late 1980. 38 pairs AON (1985-87) rising to 99 AON (2000). The site is of lesser importance for Fulmar than Kittiwake and probably holds only a limited amount of suitable habitat. 38 pairs of Fulmar comprises 0.12% of estimated national total of 31,300, as given by Lloyd *et al.* (1991).

Shag (*Phalacrocorax aristotelis*) - About 20 pairs since the 1980s, fairly stable numbers. There were six pairs in 1985-87.

Herring Gull (*Larus argentatus*) - About 170 pairs breeding up to the 1980s, big decline (in common with many sites) in the 1990s, with only about 20 pairs in 2002. 78 AON (1985-87); 45 AON (2000).

Great Black-backed Gull (*Larus marinus*): Only 2 to 4 breeding pairs since the 1980s. 2 AON (1985-87, 1999, 2000).

Guillemot (*Uria aalge*) - Very small colony, probably only about 20 occupied sites.

Razorbill (*Alca torda*) - Very small colony, probably only about 10 occupied sites. 7 individuals (1985-87).

Black Guillemot (*Cepphus grylle*) - No evidence of breeding.

The numbers of Razorbill and Guillemots are considered insignificant in a national context.

APPENDIX V: NOTIFIABLE ACTIONS

The notifiable actions relating to the habitats that occur within the site are listed below:

- Notifiable Action 1.1 - Open marine waters, inlets and bays, tidal rivers and estuarine channels, marine caves, reefs, submerged sand bank
- Notifiable Action 1.2 - Mudflats and sandflats, sandy coastal beaches, shingle beaches, boulder beaches, bedrock shores, marine caves
- Notifiable Action 1.6 - Rocky sea cliffs, clay sea cliffs, sea stacks and islets (Stacks, holms and skerries)
- Notifiable Action 2.2 - Dry lowland grasslands
- Notifiable Action 3.2 - Heath (including Juniper scrub)
- Notifiable Action 5.2 – Scrub
- Notifiable Action 6.1 – Rivers or streams
- Notifiable Action 7.1 - Ditches, hedges, cereals and intensive grasslands, walls, buildings, waste ground, bare soil, parkland grassland, bracken

HABITAT TYPE 1.1

OPEN MARINE WATERS, INLETS AND BAYS, TIDAL RIVERS AND ESTUARINE CHANNELS, MARINE CAVES, REEFS, SUBMERGED SAND BANKS

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in *Section A overleaf* are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in *Section B* overleaf may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 1.1

OPEN MARINE WATERS, INLETS AND BAYS, TIDAL RIVERS AND ESTUARINE CHANNELS, MARINE CAVES, REEFS, SUBMERGED SAND BANKS

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)
operation of commercial recreation activities (e.g. sailing schools, diving tours, jet ski hire, dolphin watching tours)	use of anti-fouling paints containing organic tin
introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area	commercial harvesting of sea urchins, winkles, or other marine invertebrates.
collection of species for aquaria	removal of soil, mud, gravel, sand or minerals
any other activity of which notice may be given by the Minister from time to time	use of pesticides or antibiotics
	operation or extension of aquaculture facilities
	dumping or disposal of wastes
	fishing by any type of nets
	fishing by pots for lobster, crab, whelk, shrimp and other species
	dredging whether for fishing or for other purposes
	use of hydraulic or suction systems for removing any species or sediments
	placement of any structures or devices on the soil or bed of the sea seaward of high water mark
	use of the soil or bed of the sea for any activity
	cutting or harvesting growing algae (seaweeds)

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 1.2

MUDFLATS AND SANDFLATS, SANDY COASTAL BEACHES, SHINGLE BEACHES, BOULDER BEACHES, BEDROCK SHORES, MARINE CAVES

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in *Section A overleaf* are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in *Section B* overleaf may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 1.2

MUDFLATS AND SANDFLATS, SANDY COASTAL BEACHES, SHINGLE BEACHES, BOULDER BEACHES, BEDROCK SHORES, MARINE CAVES

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)
operation of commercial recreation activities (e.g. sailing schools, diving tours, jet ski hire, dolphin watching tours)	use of anti-fouling paints containing organic tin
introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area	commercial harvesting of sea urchins, winkles, or other marine invertebrates.
collection of species for aquaria	removal of soil, mud, gravel, sand or minerals
collection of biological samples or organised educational activities where they occur on bedrock shores or boulder beaches	use of pesticides or antibiotics
driving vehicles over the area, except over rights of way or over access to licensed aquaculture facilities	operation or extension of aquaculture facilities
digging, ploughing or otherwise disturbing the substrate	dumping or disposal of wastes
alteration of the banks, bed or flow of watercourses	fishing by any type of nets
any other activity of which notice may be given by the Minister from time to time	fishing by pots for lobster, crab, whelk, shrimp and other species
	dredging whether for fishing or for other purposes
	use of hydraulic or suction systems for removing any species or sediments
	placement of any structures or devices on the soil or bed of the sea seaward of high water mark
	use of the soil or bed of the sea for any activity
	cutting or harvesting growing algae (seaweeds)

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 1.6

ROCKY SEA CLIFFS, CLAY SEA CLIFFS, SEA STACKSAND ISLETS (STACKS, HOLMS AND SKERRIES)

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in *Section A overleaf* are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in *Section B* overleaf may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 1.6

ROCKY SEA CLIFFS, CLAY SEA CLIFFS, SEA STACKSAND ISLETS (STACKS, HOLMS AND SKERRIES)

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)
grazing of livestock above a sustainable density (as defined in approved farm plans)	developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.
grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung	construction of fences or embankments
supplementary feeding of stock (e.g. with hay, silage, concentrates, roots etc.)	removal of soil, mud, gravel, sand or minerals
reclamation, infilling, rock removal, ploughing or land drainage.	construction of buildings or sewerage facilities
reseeding, planting of trees or any other species.	construction of roads or car parks or access routes
use of any pesticide or herbicide	
burning of vegetation.	
application of fertiliser, lime or organic materials.	
dumping, burning or storing any materials.	
cropping or removal of plants.	
removing ruined buildings alteration of the banks, bed or flow of watercourses	
operation of commercial recreation facilities (e.g. pony trekking)	
introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area	
any other activity of which notice may be given by the Minister from time to time	

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 2.2

DRY LOWLAND GRASSLANDS

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in *Section A overleaf* are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in *Section B* overleaf may, and in most cases do, require a Minister for the Marine and Natural license or consent from another statutory authority (e.g. the local planning authority, the Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 2.2

DRY LOWLAND GRASSLANDS

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)
grazing of livestock above a sustainable density (as defined in approved farm plans)/grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung	developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.
changing of traditional use from hay meadow (to either grazing or silage making), or from grazing to silage cutting	removal of soil, mud, gravel, sand or minerals
adding lime/adding fertiliser of any sort to areas not previously fertilised/ applying fertiliser which would increase the level of nitrogen in the soil/applying fertiliser which would increase the level of phosphorous in the soil/ applying phosphorous to soils which already have in excess of the REPS index 2 levels mowing grass before the 30th June (*Note; if you have been notified that your lands hold breeding corncrakes, or certain rare meadows, special provisions will apply*)	developing roads or car parks
burning of vegetation /ploughing or cultivation of lands which have not been so managed for the last 20 years	construction of fences, buildings or
reclamation, infilling, or land drainage/ reseeding, planting of trees or any other species use of any pesticide or herbicide	embankments
dumping, burning or storing any materials	afforestation
alteration of the banks, bed or low of watercourses	
operation of commercial recreation facilities (e.g. pony trekking)/introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area	
any other activity of which notice may be given by the Minister from time to time	

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 3.2

HEATH (INCLUDING JUNIPER SCRUB)

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in *Section A overleaf* are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in *Section B* overleaf may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 3.2

HEATH (INCLUDING JUNIPER SCRUB)

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)
grazing of livestock above a sustainable density or type of stock (as defined in approved farm plans)/grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung	developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.
supplementary feeding of stock, except as defined in REPS guidelines	removal of soil, mud, gravel, sand or minerals
introduction of stock to formerly ungrazed areas	developing roads or car parks
adding lime/ adding fertiliser of any sort Creation of new tracks or paths	construction of fences, buildings or
burning areas of vegetation over 5 ha, or burning any area more often than once every 15 years	embankments
reclamation, infilling, ploughing or land drainage	afforestation
reseeding, planting of trees or any other species	erecting or operating a windfarm
rock removal/cutting turf except from existing banks; no cutting from intact (uncut) areas	
commercial peat moss or turf extraction	
use of any pesticide or herbicide, including sheep dip	
dumping, burning or storing any materials	
alteration of the banks, bed or flow of watercourses	
operation of commercial recreation facilities (e.g. pony trekking)	
introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area/any other activity of which notice may be given by the Minister from time to time	

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 5.2

SCRUB

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in Section A overleaf are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in *Section B* overleaf may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 5.2

SCRUB

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)
grazing of livestock above a sustainable density (as defined in approved farm plans)/grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung	developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.
supplementary feeding of stock (as defined in approved farm plans)	any activity which may cause pollution of the site
adding lime /adding fertiliser of any sort	removal of soil, mud, gravel, sand or minerals
reclaiming land covered by scrub; if scrub is cut it must be allowed to regrow	developing roads or car parks
reclamation, infilling, ploughing or land drainage	construction of fences, buildings or
reseeding, planting of trees or any other species felling of trees, removal of timber	embankments
removal of foliage, moss or other materials	felling trees or reafforestation
killing ivy	
use of any pesticide or herbicide /dumping, burning or storing any Materials	
alteration of the banks, bed or flow of watercourses	
operation of commercial recreation facilities (e.g. walking tours)	
introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area	
any other activity of which notice may be given by the Minister from time to time	

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 6.1

RIVERS OR STREAMS

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in *Section A overleaf* are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in *Section B* overleaf may, and in most cases do, require a license or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 6.1

RIVERS OR STREAMS

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY)
grazing of livestock above a sustainable density	developing leisure facilities including golf courses, sports pitches, caravan or camping facilities.
(as defined in approved farm plans) within 30m of the river or stream/grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung within 30m of the river or stream	any activity which might cause pollution of the river or stream
supplementary feeding of stock within 30m of the river or stream/adding lime within 30m of the river or stream/adding fertiliser of any sort within 30m of the river or stream	removal of soil, mud, gravel, sand or minerals
extracting water for irrigation or other purposes	developing roads or car parks
operation of boat angling or shore angling business/ restocking with fish	construction of fences, buildings or embankments
reclamation, infilling, ploughing or land drainage within 30m of the river or stream/ reseeding, planting of trees or any other species within 30m of the river or stream/ removal of trees or any aquatic vegetation within 30m of the river/stream/ use of any pesticide or herbicide in the river or stream or within 30m of the river or stream	construction or operation of an aquaculture facility.
dumping rubbish or other materials or disposing of any chemicals or wastes in streams/rivers or into water-courses running into them	fishing for eels or salmon
dumping, burning or storing any materials within 30m of the river/stream including the land spreading of used pesticides (e.g. sheep dip)./alteration of the banks, channel, bed or flow of the river or stream	bank maintenance and grading
harvesting or burning of reed or willow.	creation of weirs and dams
causing siltation/ operation of commercial recreation facilities (e.g. bird watching tours)	
introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area	
any other activity of which notice may be given by the Minister from time to time	

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

HABITAT TYPE 7.1

DITCHES, HEDGES, CEREALS AND INTENSIVE GRASSLANDS, WALLS, BUILDINGS, WASTE GROUND, BARE SOIL, PARKLAND GRASSLAND, BRACKEN, CAVES, OR QUARRIES

Under STATUTORY INSTRUMENT 94 of 1997, made under the EUROPEAN COMMUNITIES ACT 1972 and in accordance with the obligations inherent in the COUNCIL DIRECTIVE 92/43/EEC of 21 May 1992 (the Habitats Directive) on the conservation of the natural habitats and species of wild fauna and flora, all persons must obtain the written consent, (in circumstances prescribed at section A and B below) of the Minister for The Environment, Heritage and Local Government before performing any of the operations on, or affecting, the following habitats where they occur on lands / waters within the candidate Special Area of Conservation.

Please note that where a landowner has a current approved plan under the Rural Environmental Protection Scheme or any scheme which the Minister considers to be equivalent s/he need only notify the Minister of activities not covered in the plan.

SECTION A	**SECTION B**
Please note that the activities listed in Section A overleaf are required to be notified to the Minister for The Environment, Heritage and Local Government and should not be undertaken before consent.	Please note that the activities listed in Section B overleaf may, and in most cases do, require a licence or consent from another statutory authority (e.g. the local planning authority, the Minister for the Marine and Natural Resources, or the Minister for Agriculture and Food). If so, these notifiable actions do not apply. However, if such activities are not regulated by another statutory authority, the said activities are required to be notified to the Minister for The Environment, Heritage and Local Government.

HABITAT TYPE 7.1

DITCHES, HEDGES, CEREALS AND INTENSIVE GRASSLANDS, WALLS, BUILDINGS, WASTE GROUND, BARE SOIL, PARKLAND GRASSLAND, BRACKEN, CAVES, OR QUARRIES

Section A	Section B
THE MINISTER FOR THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT IS REQUIRED TO BE NOTIFIED IN RELATION TO THE FOLLOWING ACTIVITIES AND SUCH ACTIVITIES SHOULD NOT PROCEED WITHOUT PRIOR CONSENT disturbance of bats operation of commercial recreation facilities (e.g. bird watching tours) introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area any other activity of which notice may be given by the Minister from time to time	(NO REQUIREMENT TO NOTIFY IF ALREADY LICENSED BY ANOTHER MINISTER/BODY) developing leisure facilities including sports pitches, caravan or camping facilities. developing roads or car parks construction of fences, buildings and embankments afforestation

In a very limited number of cases it may be necessary for the Minister for The Environment, Heritage and Local Government to restrict existing activities. In these cases compensation will be payable for actual losses arising out of any such restriction. In the event of restrictions being imposed by the Minister for The Environment, Heritage and Local Government, an appropriate appeals procedure will be put in place.

APPENDIX VI: COMPENSATION AND APPEALS PROCEDURES

Compensation

The Government is committed, as part of the social partnership process, to the payment of a fair and proper level of compensation to landowners who have lands proposed as part of an SAC or SPA and to other users who have a legal entitlement in the site.

A landowner or user with a legal entitlement may seek compensation for actual losses incurred due to restrictions imposed as a result of designation. Eligible persons should submit to NPWS details of the losses incurred as a result of the inclusion of lands in an SAC/SPA and outlining the basis for the calculations. Documentary evidence of past earnings and the activities that produced these should be included with the claim. Should the applicant be dissatisfied with a compensation offer, the case may be referred to an independent arbitrator who will review the matter and make a final decision.

Where a landowner or user with a legal entitlement is restricted in carrying out an activity on their land or licensed area, the compensation due will exclude any payments that have been attracted under grant schemes.

For farmers, there are two options available for receiving compensation for possible restrictions to their farming practices. Farmers may also receive payments for carrying out actions that enhance a nature conservation area.

Rural Environment Protection Scheme (REPS)

Lands within SACs, SPAs, NHAs or commonages are defined as 'Target Areas' under this scheme. A REPS plan usually covers an entire farm, but a farmer with land in a target area receives a higher payment for that area. Farmers with small areas of land in a designated area can get REPS payments for that part of their farm. In either case, the farmer is subject to certain conditions regarding farming and land use practices, set out in the REPS plan for the farm. REPS is administered by the Department of Agriculture, Food and Forestry.

NPWS Farm Plan Scheme

Where a farmer chooses not to participate in REPS, and NPWS seeks to change the farm operation in some way or to restrict a particular activity, NPWS will pay for preparation of a farm plan. This scheme also applies to land within SACs, SPAs, NHAs and commonages.

An NPWS farm plan will normally be confined just to the designated land and will address the conservation requirements, as well as any costs arising. Payment may also be made for work carried out that enhances the nature conservation value of the designated area. The farmer will have a substantial input into the plan.

A list of trained and approved farm planners is available for farmers to choose from. For further information, contact NPWS.

Appeals Procedure

Objection or appeal can be made against the inclusion of a piece of land in a cSAC or SPA. A person can only make objections if they have a legal interest in the site (i.e. an owner or legal user). They must be made on scientific grounds, e.g. a landowner would show that the relevant habitats/species/geological features were not present in such a condition as to warrant designation. Appeals can also be made for the inclusion of lands. Appeals should be accompanied by a map of the area of concern and be as informative as possible. There are two stages to the appeals process:

Internal Appeals are initially dealt with by regional staff. If necessary, they may refer the case to other NPWS staff. If there is no agreement following the internal appeal, the case becomes an external appeal.

The option of an **External Appeal** is available only where an internal appeal is unsuccessful. If so, the appellant may have the case referred to an Appeals Advisory Board, which is independent of NPWS. A grant to defray the cost of an expert scientific report is available to the appellant. The Board is comprised of equal representation of landowners/users and conservationists, with an independent chairperson. The Board makes a recommendation on each appeal to the Minister who then decides on the outcome of the appeal.

APPENDIX VII: NATIONAL PARKS AND WILDLIFE SERVICE MANAGEMENT STAFF

Conservation Ranger

Patrick Smiddy
Ballykenneally
Ballymacoda
Co. Cork
Ph 024-98286
Email psmiddy@duchas.ie

District Conservation Officer

Cyril Saich
Kilmury South
Kilworth
Co. Cork
Ph (025) 27021
Email csaich@duchas.ie

Deputy Regional Manager

Tom Ryan
Tircullen
Tallow
Co. Waterford
Ph (058) 56260
Email: tryan@duchas.ie

Regional Manager

Dr. Enda Mooney
Government Buildings
St Conlon's Road
Nenagh
Co. Tipperary
Ph (067) 44135
Fax (067) 32386
Email emooney@duchas.ie

Divisional Manager

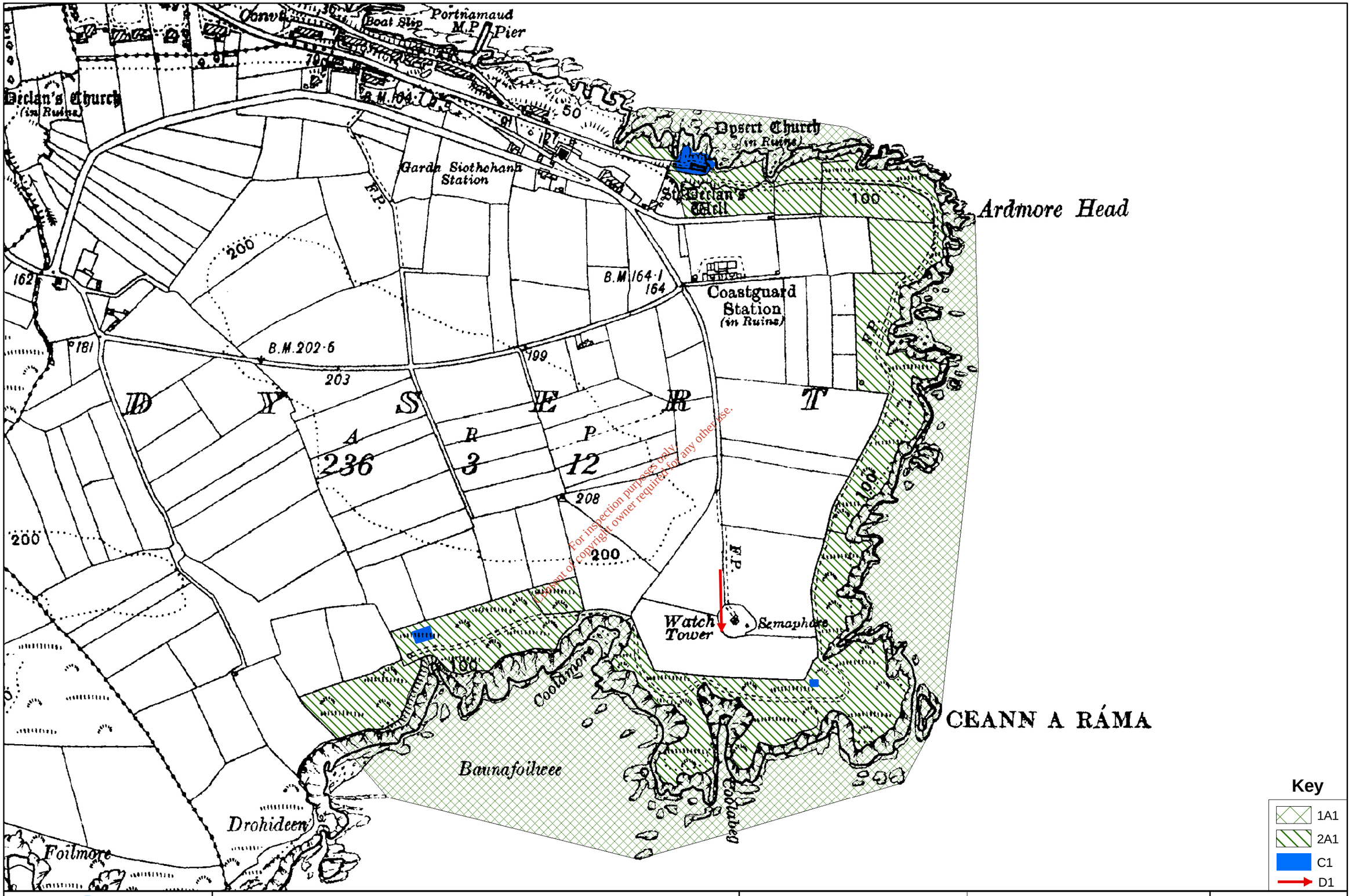
Paddy O Sullivan
Killarney National Park
Muckross House
Killarney
Co. Kerry
Phone (064) 33567
Fax (064) 33926
Email posullivan@duchas.ie

Divisional Ecologist

Dr. Jervis Good
National Parks and Wildlife Service
Government Buildings
Sullivan's Quay
Cork.
Phone (021) 4961920
Email: jgood@duchas.ie

National Parks and Wildlife Service

The Department of the Environment, Heritage and Local Government
7 Ely Place
Dublin 2
Phone Lo Call 1890 202021, (01) 8882000
Fax (01) 8883272
www.npws.ie



AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

CEANTAR SPEISIALTA CAOMHNAITHE

CANDIDATE SPECIAL AREA OF CONSERVATION

ARDMORE HEAD
WA 6" SHEET: 040

0 62.5 125 250 M

Scale 1: 4,500

MAP 3
MANAGEMENT ZONING MAP

Map to be read in conjunction with conservation plan.

SITE CODE

002123

Version 1.00

Date: July 2005

WATERFORD COUNTY COUNCIL,
ADAMSTOWN LABORATORY,
KILMEADEN,
COUNTY WATERFORD

PHONE: 051-384393
FAX: 051-384238

LABORATORY REPORT

Ardmore stream survey

INTRODUCTION

As part of the pre-bathing season survey of the stream that runs onto Ardmore beach, samples were taken throughout the stream catchment on the morning of 11/5/07. Weather conditions were wet at the time of sampling. Samples were analysed for coliform bacteria, ammonia and phosphate in order to determine water quality and assess the likely impact on bathing water quality at Ardmore.

RESULTS –

Ardmore stream - sample location	**Total coliforms per 100 msl** *(EU Bathing water standard 10,000)*	**Faecal coliforms per 100 mls** *(EU Bathing water standard 2,000)*	**Ammonia mg/l N**	**Phosphate mg/l P**
Agricultural area approx 1km u/s of Ardmore	>2419	>2419	0.05	0.03
Pipe at Russell Court housing development	>2419	>2419	0.07	0.19
Culvert near garage	>2419	>2419	0.01	0.06
Stream at weir	>2419	1986	0.09	0.04
Drain near culvert to beach	>2419	99	1.66	0.36
Stream at culvert to beach	>2419	1733	0.04	0.02

COMMENTS

The faecal coliform bacterial counts in the stream were above bathing water standards throughout the catchment. This is not unexpected during wet weather. The relatively high counts in the agricultural section of the stream may indicate a point source, such as a cattle drinking area.
The ammonia and phosphate levels were slightly elevated at some points. The discharge from the pipe from Russell Court had slightly elevated phosphate.

Recommendations

Further investigation of the stream is recommended, to determine the cause of high bacterial counts in the agricultural section of the catchment, and to characterise the discharge from Russell Court development.

Signed: Paul Carroll Scientific Officer

Date: 12/5/07

Bathing Water Quality Results

Ardmore Beach

Designated Beach

Year	Date	Time	Sampled By	Location	Total Coliforms (/ 100 ml)	Faecal Coliforms (/ 100 ml)	Faecal Streptococci (/ 100 ml)	Colour	Mineral Oils	Surface Active Substance	Phenols (mg litre C4 H3 OH)	Transparency (m / depth)	Tarry Residues, Floating Materials etc.
2008	20-May-08	12.30	HSE	Centre of Bathing Area	200	200	80	None	None	None	None	>1	None
2008	04-Jun-08	14.05	HSE	Centre of Bathing Area	6,800	2,900	1,300	None	None	None	None	>1	None
2008	17-Jun-08	11.50	HSE	Centre of Bathing Area	52	52	130	None	None	None	None	>1	None
2008	02-Jul-08	11.55	HSE	Centre of Bathing Area	3,500	2,200	290	None	None	None	None	>1	None
2008	15-Jul-08	15.00	HSE	Centre of Bathing Area	53	53	260	None	None	None	None	>1	None
2008	22-Jul-08	15.10	HSE	Centre of Bathing Area	370	370	640	None	None	None	None	>1	None
2008	29-Jul-08	11.25	HSE	Centre of Bathing Area	3,100	3,100	2,100	None	None	None	None	>1	None
2008	05-Aug-08	13.25	HSE	Centre of Bathing Area	1,280	650	142	None	None	None	None	>1	None
2008	12-Aug-08	11.45	HSE	Centre of Bathing Area	41	13	7	None	None	None	None	>1	None
2008	19-Aug-08	12.30	HSE	Centre of Bathing Area	240	144	41	None	None	None	None	>1	None
2008	26-Aug-08	14.25	HSE	Centre of Bathing Area	170	69	25	None	None	None	None	>1	None
2007	11-May-07	09:30	DH	Ardmore beach centre of bathing area	74	10	10	ok	none	none	nd	>1	ND
2007	16/05/2007	10:20	H.S.E	Ardmore beach centre of bathing area	160	78	21	None	None	None	None	>1	None
2007	29/05/2007	11:55	H.S.E	Ardmore beach centre of bathing area	61	17	23	None	None	None	None	>1	None
2007	11/06/2007	10:15	H.S.E	Ardmore beach centre of bathing area	26	26	9	None	None	None	None	>1	None
2007	20/06/2007	10:10	H.S.E	Ardmore beach centre of bathing area	540	236	180	None	None	None	None	>1	None
2007	03-Jul-07	10:25	DH	Ardmore beach centre of bathing area	659	53	10	ok	none	none	nd	>1	ND
2007	04/07/2007	13:45	H.S.E	Ardmore beach centre of bathing area	80	32	9	None	None	None	None	>1	None
2007	10-Jul-07	09:00	DH	Ardmore beach centre of bathing area	4,010	576	20	ok	none	none	nd	>1	ND
2007	16/07/2007	12:25	H.S.E	Ardmore beach centre of bathing area	54	54	20	None	None	None	None	>1	None
2007	24/07/2007	12:20	H.S.E	Ardmore beach centre of bathing area	240	144	22	None	None	None	None	>1	None
2007	24-Jul-07	11:50	SB	Ardmore beach centre of bathing area	1,270	265	50	ok	none	none	nd	>1	ND
2007	30/07/2007		H.S.E	Ardmore beach centre of bathing area	170	170	123	None	None	None	None	>1	None
2007	08/08/2007	13:35	H.S.E	Ardmore beach centre of bathing area	370	162	46	None	None	None	None	>1	None
2007	09-Aug-07	11:45	SB	Ardmore beach centre of bathing area	10,000	555	50	ok	none	none	nd	>1	ND
2007	13/08/2007	12:05	H.S.E	Ardmore beach centre of bathing area	19	14	5	None	None	None	None	>1	None
2007	22-Aug-07	09:10	DH	Ardmore beach centre of bathing area	1,918	395	53	ok	none	none	nd	>1	ND
2007	22/08/2007	13:55	H.S.E	Ardmore beach centre of bathing area	3	3	0	None	None	None	None	>1	None

Bathing Water Quality Results

Ardmore Beach

Designated Beach

Year	Date	Time	Sampled By	Location	Total Coliforms (/ 100 ml)	Faecal Coliforms (/ 100 ml)	Faecal Streptococci (/ 100 ml)	Colour	Mineral Oils	Surface Active Substance	Phenols (mg litre C4 H3 OH)	Transparency (m / depth)	Tarry Residues, Floating Materials etc.	
2006	29-May-06	12:50	SC	Ardmore Beach near carpark	<20	<20	<20	Clear	none	none	none	>1	none	
2006	08-Jun-06	15:00	SC	Ardmore Beach	75	20	<10	Clear	none	none	none	>1	none	
2006	15-Jun-06	15:00	SC	Ardmore Beach	288	31	10	Clear	none	none	none	>1	none	
2006	21-Jun-06	15:40	SC	Ardmore Beach	<10	<10	<10	Clear	none	none	none	>1	none	
2006	29-Jun-06	09:00	PC	Ardmore Beach middle of designated bathing area	2,900	1,248	nt	Clear	none	none	none	>1	none	
2006	06-Jul-06	15:30	SC	Ardmore Beach	<10	<10	<10	Clear	none	none	none	>1	none	
2006	16-Jul-06	14:55	SC	Ardmore Beach	84	<20	<20	Clear	none	none	none	>1	none	
2006	19-Jul-06	14:00	SC	Ardmore Beach	576	128	<20	Clear	none	none	none	>1	none	
2006	27-Jul-06	16:20	SC	Ardmore Beach	482	198	62	Clear	none	none	none	>1	none	
2006	24-Aug-06	14:00	SC	Ardmore Beach	174	62	<20	Clear	none	none	none	>1	some plastics	
2005	16th May	14;50	H.S.E.	Centre of Bathing Area	60	12	3	None	None	None	None	>1	None	
2005	2nd June	12;25	H.S.E.	Centre of Bathing Area	109	109	12	None	None	None	None	>1	None	
2005	7th June	13;15	H.S.E.	Centre of Bathing Area	800	800	440	None	None	None	None	>1	None	
2005	20th June	10;45	H.S.E.	Centre of Bathing Area	160	160	730	None	None	None	None	>1	None	
2005	28th June	11;15	H.S.E.	Centre of Bathing Area	3,800	2,160	780	None	None	None	None	<1	None	see note 1
2005	6th July	11;15	H.S.E.	Centre of Bathing Area	4	1	0	None	None	None	None	>1	None	
2005	12th July	13;20	H.S.E.	Centre of Bathing Area	25	21	100	None	None	None	None	>1	None	
2005	18th July	13;15	H.S.E.	Centre of Bathing Area	23	23	12	None	None	None	None	>1	None	
2005	15th August	15;40	H.S.E.	Centre of Bathing Area	12	12	2	None	None	None	None	>1	None	
	Note 1: Sampled at High Tide. Seaweed, jelly fish in abundant.													
2004	17-May-04	14;30	S.E.H.B.	Centre of Bathing Area	4	2	97	None	None	None	None	>1	None	
2004	01-Jun-04	14;05	S.E.H.B.	Centre of Bathing Area	50	20	5	None	None	None	None	Sat	None	
2004	15-Jun-04	14;55	S.E.H.B.	Centre of Bathing Area	4	2	1	None	None	None	None	Sat	None	
2004	05-Jul-04	12;10	S.E.H.B.	Centre of Bathing Area	18	9	23	None	None	None	None	Sat	None	
2004	12-Jul-04	15;10	S.E.H.B.	Centre of Bathing Area	4	4	3	None	None	None	None	Sat	None	

Bathing Water Standards (Microbiological)

Regulation	Total Coliform		Faecal Coliform		Faecal Streptococci	
	Level	Com%	Level	Com%	Level	Com%
EU Guide (Blue Flag) +	500	80	100	80	100	90
Irish Regulation *	5,000	80	1,000	80	300	95
EU Mandatory +	10,000	95	2,000	95		

\+ Directive 76/160/EEC
* SI 155 of 1992

Waterford County Council
Comhairle Chontae Phortláirge

Bathing Water Quality Results

Ardmore Streams

Waterford County Council
Comhairle Chontae Phortláirge

Year	Date	Time	Sampled By	Location	Total Coliforms / 100 ml	Faecal Coliforms / 100 ml	Faecal Streptococci / 100 ml	Colour	Mineral Oils	Surface active substances	Phenols mg litre C4 H3 OH	Transparency m / depth	Tarry residues, floating materials etc.	
2008	17/06/2008	11.55	HSE	Centre of Bathing Area	2,000	1,600	570	None	None	none	None	>1	None	
2008	02/07/2008	12.05	HSE	Centre of Bathing Area	3700	2960	2500	None	None	none	None	>1	None	
2008	29/07/2008	11.35	HSE	Centre of Bathing Area	>15000	>15000	>15000	None	None	none	None		None	
2008	12/08/2008	11.55	HSE	Beside storm wall	>15000	7800	1490	None	None	none	None		None	
2006	17-May-06	10:20	HSE	Beside Storm Wall	580	580	300	none	none	none	none	n/a	none	
2006	31/05/2006		H.S.E.	Beside Storm Wall	340	340	210	none	none	none	none	n/a	none	
2006	14/06/2006	13:45	H.S.E.	Beside Storm Wall	620	490	490	none	none	none	none	satisfactory	none	
2006	27/06/2006	13:25	H.S.E.	Beside Storm Wall	7100	640	340	none	none	none	none	satisfactory	none	
2006	25/07/2006	14:05	H.S.E.	Beside Storm Wall	15000	12000	480							
2005	23th May	16;55	H.S.E.	Stream on strand	850	680	230							
2005	3rd June	16;30	H.S.E.	Stream on strand	860	850	140							
2005	17th June		H.S.E.	Stream on strand	1,480	1,390	170							
2005	6th July	16;35	H.S.E.	Stream on strand	15,000	10,800	1,280							see note 1
2005	5th August	10:30	H.S.E.	Stream on strand	21	17	1							
2005	11th August	12:30	H.S.E.	Stream on strand	1	0	1							
2005	23rd August	11:45	H.S.E.	Stream on strand	3	3	0							
2005	30th August	13:00	H.S.E.	Stream on strand	1	1	0							
Note 1: chlorinator down														
2004	17/5/04	14;35	S.E.H.B.	Beside Storm Wall	450	224	63	None	None	None	None	Sat	None	
2004	06/01/2004	14;15	S.E.H.B.	Beside Storm Wall	2,300	960	63							
2004	15/6/2004	15;10	S.E.H.B.	Beside Storm Wall	520	520	88							

Bathing Water Standards (Microbiological)						
Regulation	Total Coliform		Faecal Coliform		Faecal Streptococci	
	Level	Com%	Level	Com%	Level	Com%
EU Guide (Blue Flag) +	500	80	100	80	100	90
Irish Regulation *	5,000	80	1,000	80	300	95
EU Mandatory +	10,000	95	2,000	95		

\+ Directive 76/160/EEC
* SI 155 of 1992

DC10832

AN ROINN COMHSHAOIL, OIDHREACHTA AGUS RIALTAIS ÁITIÚIL
DEPARTMENT OF THE ENVIRONMENT, HERITAGE AND LOCAL GOVERNMENT

7th December 2004

A8889

Our Ref.: G2004/548
Your Ref.: NS/UB

Mr Neil Smyth,
EG Pettit & Company,
Springville House,
Blackrock Road,
Cork

AN ROINN COMHSHAOIL,
OIDHREACHTA AGUS
RIALTAIS ÁITIÚIL
DEPARTMENT OF THE
ENVIRONMENT, HERITAGE AND
LOCAL GOVERNMENT

DÚN SCÉINE
LÁNA FHEARCAIR
BAILE ÁTHA CLIATH 2

DÚN SCÉINE
HARCOURT LANE
DUBLIN 2

Tel: +353 1 411 7109
Fax: +353 1 411 7120

Re: Waterford Grouped Villages Sewerage Scheme

Dear Mr Smyth,

We refer again to your letter of the 9th November 2004 in reference to the above. Outlined below are the nature conservation comments / recommendations of the Department of the Environment, Heritage and Local Government.

In some cases interesting habitats (from the conservation point of view) are likely to be affected by the proposals, although they may not be designated or proposed for designation. It may be possible for the engineers and planners of these Waste Water Treatment Plant's (WWTP) to take these into account and to avoid or minimise damage to them. In such cases their non-designated status is made clear, and such areas are indicated in yellow on the maps enclosed.

In all cases, the documents examined here involve a plan showing the proposed collection system only.

Ardmore (A8889-N-103):

There appears to be four options for the WWTP. All of these are to the west of the main beach and all are well away from the only protected habitat in the area (Ardmore Head candidate Special Area of Conservation (cSAC) Site Code No. 002123 (site synopsis attached). The outfall will be to the sea well off the main beach. I do not envisage any effect whatsoever on the Ardmore Head cSAC.

Non-designated habitat: At the north end of Ardmore main beach behind the car park there is a small marsh. This was once a reed-fringed pool, but in recent years it has dried out due to a better drainage system to the sea. Currently it consists of Reeds developing into scrub, but at times in winter it may hold some water. Formerly, it had breeding Little Grebe, Mute Swan, Mallard, Moorhen, Coot, Sedge Warbler, Reed Bunting and Stonechat. In its current state it is likely to hold only a few Sedge Warbler, Reed Bunting and Stonechat. The site is locally important.

Ballyduff/Kilmeaden (A8889-N-203):

The location of the WWTP and most of the collection pipes appear to me to be in either agricultural land or following existing roads. However, the outfall pipe will

be to the River Suir, which is within the River Suir cSAC, site code No. 002137 (site synopsis attached). Provided the necessary care is taken with regard to restoring the habitat affected by the outfall pipe, then there should be little or no negative effect on the River Suir SAC.

Non-designated habitat: There is little in the way of interesting non-designated habitats that are likely to be affected.

Cappoquin (A8889-N-303):

There are two options for the WWTP at Cappoquin. Both are for sites on the east bank of the Blackwater River about 1km downstream from Cappoquin. Neither site is within the Blackwater River cSAC, site code No. 002170 (site synopsis attached), but both adjoin it. The outfall pipe will be to the Blackwater River, within the SAC. Provided the necessary care is taken with regard to restoring the habitat affected by the outfall pipe, then there should be little or no negative effect on the Blackwater River SAC.

Non-designated habitat: There are no interesting non-designated habitats within the 'collection' area, or along the route of the pipe from the town of Cappoquin to the WWTP.

Dunmore East (A8889-N-403):

There are two options for the WWTP at Dunmore East. Both are for sites immediately to the south and west of the town. Both appear to be in agricultural land and are well back from the cliff top. The River Suir cSAC extends to sea around Dunmore East. One of the most important conservation issues at Dunmore East is the conservation of the cliffs containing the Kittiwake colonies. It is not envisaged that any damage to these cliffs as a result of the WWTP. The outfall pipe(s) go straight to the sea, within the River Suir SAC. Provided the necessary care is taken with regard to restoring the habitat affected by the outfall pipe(s), then there should be little or no negative effect on the River Suir SAC.

Non-designated habitat: There are no interesting non-designated habitats within the 'collection' area that are likely to be affected.

Kilmacthomas (A8889-N-503):

There are four options for the WWTP, all close to the River Mahon. None of the site options are on land of serious conservation interest. The outfall will be to the River Mahon.

Non-designated habitat: The River Mahon holds a population (unknown size) of Freshwater Mussels (Margaritifera margaritifera). The known segment of the population is situated about 6km downstream, but there may be other unknown populations since the river has not been thoroughly surveyed. Freshwater Mussels require very clean waters. Therefore, no reduction in river quality should be allowed. However, I presume the present situation is that sewage is released to this river, therefore, the new treatment plant should improve the situation. A survey of

the Freshwater Mussel population of the River Mahon is recommended.

Stradbally (A8889-N-603):

The site of the proposed WWTP is in agricultural land and is well away from any designated site the coastline here is proposed Natural Heritage Area (pNHA). There appears to be an outfall to the River Tay at present, which in turn discharges to Stradbally Cove. Although it is not clear from the map, the present outfall may be discontinued. The new outfall will be straight to the sea at Ballyvooney Cove, to the east of the village of Stradbally. Although this area (Ballyvooney Cove) is pNHA, discharge here is preferable than to either the River Tay or Stradbally Cove, which is a very enclosed and sheltered area. The River Tay has a Freshwater Mussel population, although the downstream extent of it is unknown. A survey of the Freshwater Mussel population of the River Tay is recommended.

Non-designated habitat: There are no interesting non-designated habitats within the 'collection' area that are likely to be affected.

Tallow (A8889-N-703):

The site of the proposed WWTP is within the Blackwater River SAC (Site Code No. 002170). The site is agricultural land, usually in pasture, which is prone to flood during winter rainstorms. The outfall will be to the River Bride, also within the Blackwater River SAC. The area taken up by the WWTP will be very small when viewed against the size of the SAC, and the benefits that will accrue from better water quality. However, there are alternative locations nearby, just outside the SAC boundary. Provided the necessary care is taken with regard to restoring the habitat affected by the outfall pipe(s), then there should be little or no negative effect on the Blackwater River SAC.

Non-designated habitat: There are no interesting non-designated habitats within the 'collection' area that are likely to be affected.

If you have any further queries please do not hesitate to contact the undersigned.

Yours sincerely,

Helen Francis,
Development Applications Unit

ARDMORE WASTERWATER TREATMENT PLANT
FLORA AND FAUNA EIS REPORT

(May-July 2005)

Commissioned by: E.G. Pettit & Co.
Carried out by: Aquatic Services Unit, UCC
(July 2005)

TABLE OF CONTENTS

1 INTRODUCTION AND BRIEF

The Aquatic Services Unit were commissioned by E.G. Pettit & Co. to carry out a flora and fauna impact assessment of the proposed upgrade to the surface water and wastewater drainage systems in Ardmore County Waterford. The work was to cover terrestrial ecological aspects as well as freshwater and marine aquatic habitats potentially affected by the proposed development.

It is the understanding of the Aquatic Services Unit that a copy of this report will be sent to the Developments Applications Unit of the National Parks and Wildlife Service for comment.

Ardmore is a small seaside town in County Waterford, which is famous for its cultural heritage and which attracts large numbers of holidaymakers and day-trippers to its long strand and other town attractions during the tourist season each year. The proposed development will entail the construction of a wastewater treatment plant (WWTP) in the townland of Duffcarrig to the north of the town. In addition, two relatively long marine pipelines will be constructed to carry storm drainage and treated wastewater to the sea in Ardmore Bay. At present effluent is discharged to the sea untreated at low tide in the southern part of the bay just north of the breakwater.

In undertaking this work the following studies were undertaken:

- Terrestrial Flora and Habitats — Ms. Jo Goodyear BSc.
- Birds — Dr. Gavin Fennessy
- Mammals — Dr. Paddy Sleeman
- Freshwater Ecology and Fisheries — Gerard Morgan MSc.,
- Marine Ecology — Derek Casey MSc., David Gillespie MSc., Dr. Sammy De Grave

The study was coordinated by Gerard Morgan (ASU) who also compiled and edited the report.

The report is laid out in just thee chapters. The other chapters cannot be added at this time because our botanist was refused permission by the landowner to access the site of the proposed WWTP and the outfall pipeline route for the pipe to the bay. A decision was taken therefore to drop all the terrestrial surveys, which would require access to the said lands, and instead the efforts were concentrated on the freshwater and marine studies where access was not an issue.

2 AQUATIC - FRESHWATER

2.1 Receiving Environment

The Ardmore drainage system up-grade will see the construction of new surface water sewers, which will discharge to a very small watercourse, which flows east to the sea toward the southern end of the village. This watercourse is very narrow and muddy bottomed throughout its length and virtually dry where the two most upstream hydrocarbon separators join it (Fig. 2.1). At the point where the third most upstream separator joins it, there is some water in the stream but the wetted channel, comprising totally of mud, is no more than 30cm wide and about 1cm deep. Between this and the point where the fourth hydrocarbon separator joins the stream, there is an area of tall herb fen adjoining it. At the where it is joined by the fourth separator, beside a shop and petrol station, the watercourse has been canalised somewhat upstream of the road bridge. At this point there has been quite a lot of bank-side vegetation clearance on the right bank while the left bank has been reinforced with rock-filled gabions (Plate 1). The channel here is again muddy-bottomed with just a few centimetres of water and some marginal Fool's Watercress (*Apium nodiflorum*).

Downstream of the road (under which the stream is culverted) the channel is chocked with Fools Watercress with some Watercress (*Nasturtium aquaticum* agg.), while the banks are well vegetated with Great Horsetail (*Equisetum telmateia*) nettle and Burnet Saxifrage (*Pimpinella saxifraga*) etc. (Plate 2). Further downstream, immediately above and below a small v-notch weir, Water Starwort (*Callitriche* sp.) was common on very still water.

2.2 Sampling & Water Quality

The muddy waters were not sampled for macroinvertebrates, as the habitats are unsuitable for the EPA Q-rating system. Nevertheless, the general appearance of the watercourse suggested that at most it had a marginally impaired water quality. However, its ecological value is minor overall apart from the plant community adjoining its banks in places, which is relatively natural.

The stream has no fisheries significance even though there were small fish (probably minnow) visible in its lower reaches.

2.3 Potential Impacts.

The relatively low biodiversity associated with this little watercourse means that it is very unlikely to be significantly adversely impacted by the proposed storm water discharges that are planned to be directed to it.

2.4 Mitigation

When the storm water sewers are being excavated care should be taken to ensure that they don't act as conduits for solids contaminated run-off to the stream. This might be avoided by ensuring that the last one or two metres of the trench remains unexcavated until all the upstream section has been laid and backfilled. Should any

de-watering be required for the trench no solids-contaminated water should be discharged to the stream without adequate treatment. If a mass concrete head wall is envisaged for storm sewer outfalls, care should be taken in pouring liquid cement to prevent any reaching the stream. The work should therefore be done on a dry day and the shuttering should be secure from leaks or the units should be manufactured off-site.

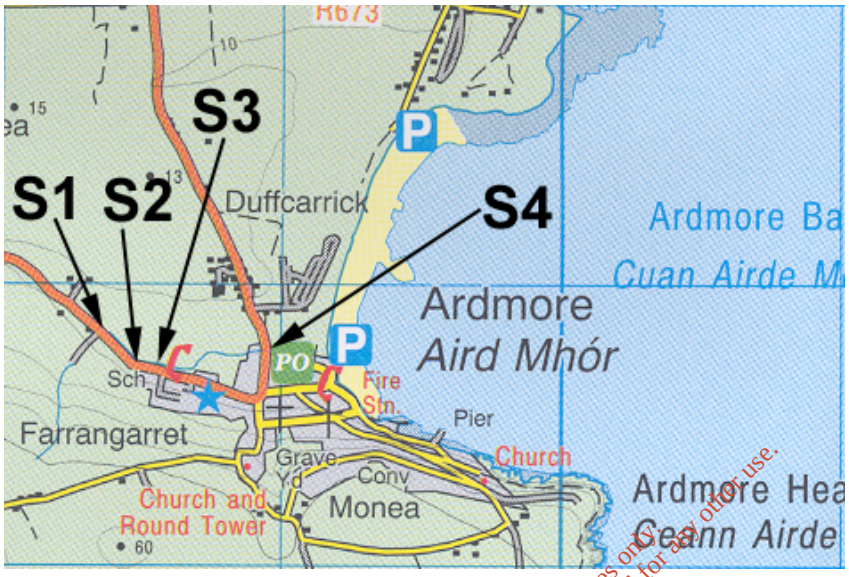


Figure 2.1 Small Ardmore stream indicating sites were observations were made.

Plate 1 Small watercourse upstream of road bridge

Plate 2 Small watercourse downstream of road bridge

3 AQUATIC - MARINE

3.1 Introduction

The features of the Ardmore WWTP development likely to affect the marine environment are two marine pipeline outfalls, one commencing in the WWTP compound in the Duffcarrick area north of the town discharging via a 700m+ pipeline to the centre of Ardmore Bay and the second a storm water outfall pipe discharging from the Farrangarret region in the town via a 500m outfall pipe to a southern part of the bay.

To assess to current status of the biological communities in these areas of Ardmores' marine environment as well as those potentially impacted by the proposal, a combination of intertidal transect surveys and sub-tidal benthic grab surveys were undertaken.

3.2 Methodology

Fieldwork was carried out on the 14th of April 2005 (Subtidal Grab Survey) and 9th June 2005 (Intertidal survey). Benthic faunal samples and sediment samples were taken by means of a 0.1m^2, stainless steel Van-Veen grab. A complete list of sub-tidal benthic stations sampled and the stations displayed on a map are given in Table 3.1 and Figure 3.1 respectively. In addition, shoreline surveys were carried out in the immediate vicinity of the proposed outfall pipes. Sediment core samples were taken, where possible, using a 0.028m^2 stove pipe core to a depth of 10cm. A complete list of intertidal stations sampled and the stations displayed on a map are given in Table 3.2 and Figure 3.2 respectively. All sampling positions were recorded using a GPS receiver.

	Easting	Northing	Depth to CD (m)	Sediment Type
Ard1	219913	78057	6.3	Sand
Ard2	219832	78161	5.5	Sand
Ard3	219660	78228	2.7	Sand
Ard4	219600	78400	2.1	Sand
Ard5	219919	78003	6.2	Muddy Sand
Ard6	219902	78094	6.2	Sand
Ard7	219883	77953	5.9	Sand
Ard8	219901	78214	6.2	Sand
Ard9	219810	78060	4.9	Sand
Ard10	219947	78098	6.4	Sand
Ard11	219619	78373	2.4	Sand
Ard12	219570	78054	2.7	Sand
Ard13	219469	78064	3.1	Sand
Ard14	219740	77762	4.0	Sand
Ard15	220240	78107	9.2	Sand
Ard16	219704	77630	3.0	Sand
Ard17	219664	77672	2.7	Sand
Ard18	219795	77628	1.2	Sand
Ard19	219700	77709	3.3	Sand
Ard20	219691	77540	2.5	Sand
Ard21	219774	77463	3.8	Sand
Ard22	219538	77791	1.9	Sand
Ard23	220444	77625	13.0	Muddy Sand
Ard25	220714	79072	7.5	Sand

Table 3.1 Locations of sub-tidal sampling positions at Ardmore. All positions given in Irish National Grid.

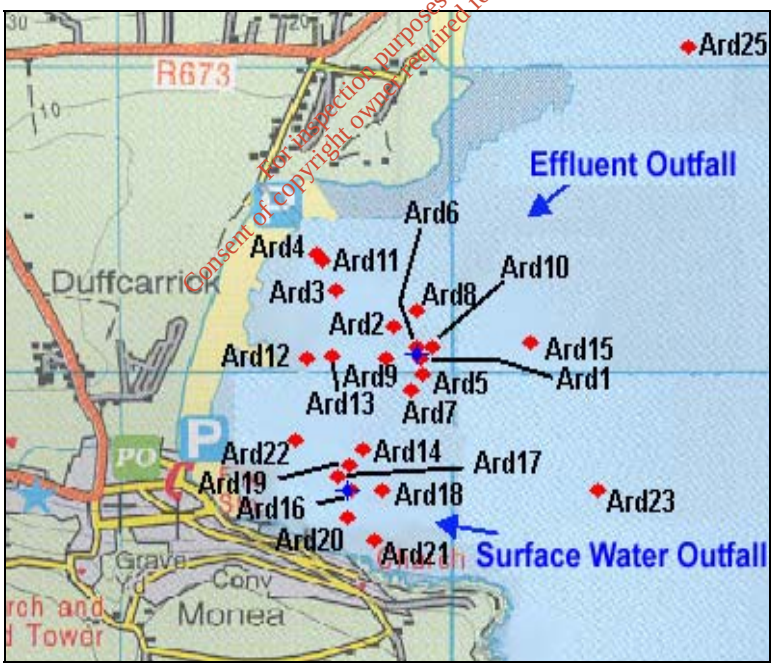


Figure 3.1 Locations of sampling positions for Sub-Tidal Grab Survey (Red Diamonds). Also presented are the positions of the proposed outfalls (Blue Crosses).

	Easting	Northing
Ardmore Intertidal 1	219459	78567
Ardmore Intertidal 2	219486	78539
Ardmore Intertidal 3	219509	78529
Ardmore Intertidal 4	219213	77660
Ardmore Intertidal 5	219271	77655
Ardmore Intertidal 6	219312	77655
Transect 1 Start	219631	78632
Transect 1 End	219614	78537
Transect 2 Start	219440	77513
Transect 2 End	219445	77538

Table 3.2 Locations of intertidal sampling positions at Dunmore East. All positions given in Irish National Grid.

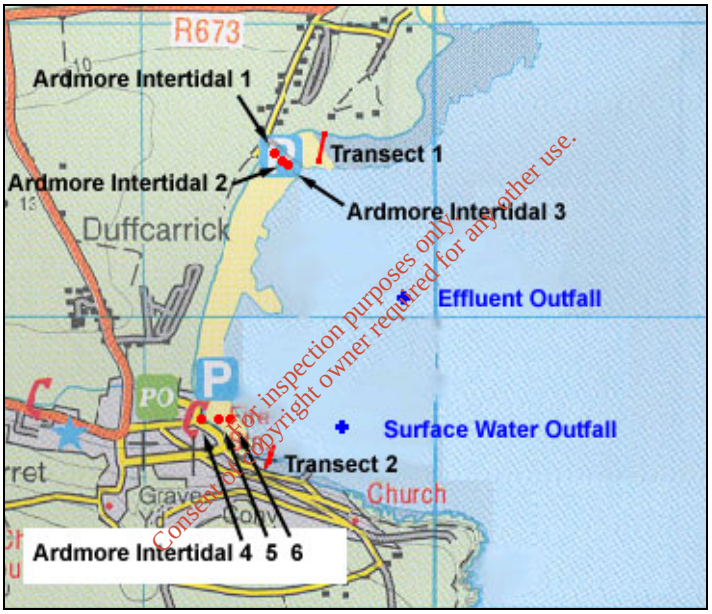


Figure 3.2 Locations of sampling positions for Intertidal Surveys (Red Circles). Transects are presented as red lines. Also presented are the positions of the proposed outfalls (Blue Crosses).

3.2.1 Sub-Tidal Benthic Samples

A total of 24 stations were sampled for benthic faunal analysis, granulometric analysis and organic carbon analysis. At each station the following were undertaken:

- 1x 0.1m2 Van-Veen grab was deployed for benthic faunal analysis. Samples were transferred to separate labelled 10 litre buckets. All samples were sieved through a 1mm mesh sieve, fixed in formalin and identified to species level where possible.

- 1x Van-Veen grab from which 100g of well-mixed sediment was transferred to a sealed plastic container for granulometric and organic carbon analysis.

3.2.2 Shore Survey

A detailed shore survey was conducted of the shoreline in the immediate vicinity of the proposed outfalls to assess the communities present. General observations were made on the rocky shore community, noting the dominant species and their abundance levels. More detailed observations were made at each transect along the tidal height axes.

In addition, soft sediment samples were taken in the path of both outfalls. Three stations were sampled along the intertidal route of each outfall. At each station the following were undertaken:

- 1x 0.028m^2 Stovepipe core was taken to a depth of 15cm for benthic faunal analysis. Samples were transferred to separate labelled bags. All samples were sieved through a 1mm mesh sieve, fixed in formalin and identified to species level where possible.

- 1x surface sediment scrape from which 100g of well-mixed sediment was transferred to a sealed plastic container for granulometric and organic carbon analysis.

Habitat Classification

The encountered biotopes were then classified using the latest JNCC Biotope classification scheme (Connor *et al*., 2004). This scheme provides an ecologically based classification of seashore and seabed features, aimed primarily at classifying benthic communities of invertebrates and seaweeds.

3.3 Results

3.3.1 Sub-Tidal Survey

A total of 34 taxa were encountered in the macrobenthic samples, all of which are of widespread occurrence in the Irish Sea and the general area around Ardmore and Dunmore East. A full list of the species encountered and the densities at which they occur are given in Appendix 3. Sediment grain size data is presented in Appendix 4.

The encountered community belongs to the SS.SSA.ImuSa.FfabMag biotope (*Fabulina fabula* and *Magelona mirabilis* with venerid bivalves and amphipods in infralittoral compacted fine muddy sand). This biotope is widespread in the coastal areas of the Irish Sea, and typically occurs on stable, fine, compacted sands with minor mud content. One station (S23) appears slightly anomalous, as both indicator taxa are absent. Nevertheless, other characteristic species are present, and this is likely related to poor grab penetration at this station. It should however be noted, that as this station is situated slightly deeper than the other ones, and given the fact that this biotope forms part of a continuum related to depth and/or sand/silt gradients, it

may belong to a related biotope. This could not be resolved, given the absence of other characteristic taxa for the other biotopes in the continuum.

The species richness of the samples is quite low, with on average 7.6 species per sample and correspondingly low individual densities, resulting in an overall abundance of 33.79 per sample. This is typical of such communities.

3.3.2 Intertidal Survey

Soft Sediment

In total 10 species were encountered in the macrofaunal core samples. A full list of the species encountered and the densities at which they occur are given in Appendix 5. Sediment grain size data is presented in Appendix 6.

Hard Benthos

Transect 1

The section of shore at Transect 1 is approximately 100 meters long – Plate 3. The shore comprises of a boulder and bedrock matrix. The upper aspect of the transect is characterised by the presence of flowering plants, the Sea Samphire, *Crithmum maritimum*, and the Sea Pink, *Armeria maritime*. In addition, the orange lichen, *Caloplaca marina* is also present just downshore of the flowering plants.. The splash zone of the transect is characterised by the presence of *Verrucaria maura* (20%-30%), with no other obvious flora or fauna present. This area is classified as LR.FLR.Lic.Ver.Ver (*Verrucaria maura* on very exposed to very sheltered upper littoral fringe rock).

The next zone down the shore consists of large numbers of gastropod molluscs (*Littorina littorea* and *Gibbula umbillicalis*) and limpets (*Patella vulgata*). The bedrock present at this part of the shore contains small rock pools which are coated in *Lithothamnia* and some green algae (species indet.) and are quite depauperate of fauna, with the exception of a small number of beadlet anemones, *Actinea equina*, present in deep crevices. There are several large rock pools in this section of the shore. These rock pools are dominated by ephemeral green algae (such as *Enteromorpha* and *Ulva*) and the red algae *Chondrus crispus*. In addition, there are large numbers of gastropod molluscs (*G. umbillicalis*, *L. littorea* and *Nucella lapillus*) present in the areas immediately bordering the rockpools. Any bare rock in this area is covered (95%) by barnacles (*Chthamalus montaguii* and *Semibalanus balanoides*). This area is classified as LR.FLR.Rkp.G (Green seaweeds in shallow upper shore rockpools).

Further downshore the area becomes almost exclusively covered in fucoids (95%) – *Fucus vesiculosus* and *Fucus serratus*. In areas where fucoids are absent, *Enteromorpha* sp. is present attached to rock. There is a wide range of associated species found on the surface of the rock underneath the fucoid canopy, including *Spirorbis* spp., *P. vulgata* and winkles *L. littorea*. The red encrusting alga *Lithothamnion* is also present on rocks. This area is characterised as

LR.LLR.F.Fserr.FS (Dense *Fucus serratus* on moderately exposed to very sheltered full salinity lower eulittoral rock) – Plate 4.

Transect 2

Transect 2 is located on the opposite side of the bay to Transect 1. The shore is approximately 30m long – Plate 5. The uppermost part of the transect is characterised by the presence of high abundances (50%) of channel wrack, *Pelvetia canaliculata* and barnacles. This community is defined as LR.MLR.BF.PelB (*Pelvetia canaliculata* and barnacles on moderately exposed littoral fringe rock).

Beneath this zone is a *F. vesiculosus*, *F. serratus* (50%) and *Enteromorpha* (35%) mix. In addition, there are high numbers of *N. lapillus*, *L. littorea*. *L. obtustata* and *P. vulgata* present on the rock. To the lower end of this zone, there are some *Sabellaria* reefs, which border a small rock pool. This rock pool is characterised by a covering of encrusting coralline algae, *Corallina officinalis*, on the bottom of the pool. In addition, high abundances of *Chondrus crispus* and *Ceramium nodulosum* are present in the pool. There are several green algae present also – *U. lactuca* and *Cladophora rupestris*. Within the pool itself, there are large numbers of grazing molluscs - *L. littorea*. *L. obtustata* and *P. vulgata*. This is characterised as LR.FLR.Rkp.Cor.Cor *Corallina officinalis* and coralline crusts in shallow eulittoral rockpools – Plate 6.

The bottom of the transect is dominated by the fucoid, *F. serratus*. Other algae present include *Palmaria palmate*, *C. officinalis*, *M. stellatus*, *P. umbilicallis* and *Laminaria digitata*. *P. vulgata* and *L. obtusata* are present in high numbers at this shore level.

3.4 Potential Impact

3.4.1 Overview

Sewage pollution generally has two major effects on the marine environment, one related to the increased deposition of suspended fines, and one relating to increased loadings in ambient nutrient levels, both in the water column and within the sediment matrix.

Increased deposition of fines may lead to a shift in the ambient community, as deposit feeders become more dominant, many of which are opportunistic species, able to rapidly exploit this newly available food source. Although deposit feeders are a dominant component of more muddy and estuarine environments, in more open and sandier environments, they are generally a relatively minor component of the benthic community. In such environment, depending on the actual level of deposition, relatively major shifts in community composition can occur.

Such shifts are also related to the increased loadings of nutrient, generally called organic enrichment. With increased loading, suspension-feeders and filter-feeders may become an equally dominant component of the benthos.

Initially the community response to sewage pollution is in many cases beneficial, both in terms of higher population densities; due to an increased food supply, and higher

community richness, due to newly available niches. However, with prolonged exposure and/or increased levels of nutrients and sedimentation beyond certain (community specific) levels, a negative effect may often occur, with a decrease in species richness, as fewer species are able to tolerate the increased loadings. These typically are highly opportunistic species, with a fast generation turnover, and as such are frequently present in very high densities.

Following the abatement of sewage pollution, a steady return to pre-sewage conditions occurs, largely dependent on tidal and wind-driven mixing, bioturbation and the availability of larval propagules from adjacent pristine communities. In more open, tidally or current mixed situations, this return is much faster than in less hydrodynamically influenced communities.

3.4.2 Specific Impacts - Ardmore

There are three distinct impact scenarios associated with the Ardmore development; one associated with laying of the pipelines, which will be for the wastewater pipe, 675m long, of which approximately 562.5 m will be subtidal and for the surface water pipe will be 500 m long, of which 375 m will be subtidal; a further scenario associated with the increased loading of surface water run-off; and finally one associated with the increased treated sewage loadings

For the purpose of discussing the potential impact of laying both the sewage pipe and the storm water drain in the subtidal environment, it is assumed that this will be done by backhoe dredging from a floating platform, as this is the most environmentally damaging option. Should other options such as horizontal directional tunnelling be employed, the associated impacts will be less. Based on supplied information, such backhoe dredging would create a trench of 1.5 m deep and 3.5 m wide, which will be finished within approximately three weeks for each pipeline.

As the subtidal sediment will be removed and possibly placed aside for later back filling, there is an immediate impact of removal of the associated biotope. Given the small spatial scale of the trench, further aided by the short time scale to completion, and the widespread occurrence of this biotope, such an impact can be considered small to negligible. Following backfilling, the community will be able to rapidly re-establish itself, especially given their intrinsic dispersal potential of several of it's species (e.g. cumaceans, mobile amphipods) or through recolonisation of larval propagules, for which a ready supply exists in the wider area. The similarity of species composition between the stations in the path of the proposed pipeline and the other sampled stations, exemplifies a significant local resource for recolonisation. As the majority of species are active swimmers (e.g. cumaceans, amphipods) or shallow burrowing fauna (e.g. bivalves), which are able to rapidly burrow upwards, it can be assumed that the majority of displaced animals will actually survive such a procedure.

Once the surface water outfall is operational, there will be pulses of storm water and associated drainage, possibly mildly polluted with agricultural runoff, and containing increased nutrient and bacterial loadings. In the main, any effects will be associated with reduced salinity levels, although there may be some increased loadings of suspended solids and possibly transient heightened nutrient levels. However, given the high dispersal of such an effluent, which can be assumed on the basis of the

encountered biotope (characteristic of high tidal exchange), the immediate and medium-long term effects will be small to negligible. It is not expected that reduced, localised salinity eddies will have medium to long-term effects, given the high dispersal potential of the receiving waters.

Stations 17 and 18 are situated close to the existing sewage outfall, and it can be see that their community composition differs little from surrounding stations. It can therefore be assumed that little negative impact of the existing outfall is visible in the area. Although an increase in loadings will take place with the new outfall, this does point to the intrinsic capacity of the ambient community to absorb any loadings. This is of course linked to the high dispersal potential of the receiving waters, and in all likelihood any visible effects will be short lived, and no medium to long term adverse effects are predicted.

Although the increased loadings may result in localised, minor amounts of deposition of fines, which in turn may result in some suspension feeders establishing themselves in the area, this appears unlikely as no such species are present at the stations, close to the existing outfall.

With regards the potential impact of the development on the intertidal section, there are two distinct impact scenarios. One associated with the laying of the outfalls across the beach at Ardmore, and the other associated with the potential for impact on the rocky shore intertidal of the increased nutrients and suspended fines.

During excavation of the intertidal part, there will be removal of sediment with its associated community. As this sediment will be redistributed on high tide, due to wave and tidal action, it is considered unlikely this will have a significant impact on the resident fauna. This is especially the case, as species living on mobile sand, are well adapted to occasional wave disturbances and are able to rapidly rebury themselves or move off. It is very likely that any negative impact will be of such a short transitory nature as to be insignificant. There may be a limited impact, due to movement of heavy machinery across the sand, which may result in localised compaction. However, given the motile nature of the species, this can be assumed to be very transient in nature.

Given the distance from the shore and the strong dispersal potential for the treated effluent it is not expected that there will be any impact on the soft sediment intertidal communities due to the discharge of treated waste on the intertidal areas.

The rocky shore intertidal sections found in Ardmore Bay are characteristic of moderately exposed rocky shores. The dominant macroalgae present is the fucoid, *F. serratus*. The characteristic communities recorded during the survey are very common for the region, and are typical for the shore type. It is clear from the dispersion models that neither of the rocky shore areas should be affected from any effluent released into the bay. Because of this, the level of treatment proposed and the common nature of the communities found it is unlikely that the proposed development will have any significant deleterious impact on the rocky-shore intertidal stretches of the region.

It is possible, however, that the growths of the green alga *Enteromorpha* visible on the shore at Ardmore will diminish somewhat when storm water and treated wastewater are discharged off shore. This will be due to the fact that at these more offshore discharge points the nutrients associated with the discharges will have diluted significantly before they reach the intertidal areas and so the stimulatory effect, which they now have on the growth of this alga (mainly during summer months) will be diminished. In especially eutrophic bays, this alga can reach nuisance proportions so any measures, which stem its excessive development can be classed as positive.

3.5 Mitigation Measures

Given that the anticipated adverse impact of the proposal will be minor and short-term significant mitigation measures are not considered necessary. The following minor measures however should be adopted:

(i) The Southern Regional Fisheries Board should be informed in advance when it is intended to begin on-shore works
(ii) Constriction vehicles should not be re-fuelled on the intertidal area
(iii) Precautions should be taken to ensure that oil from construction plant (e.g. compressors, generators or pumps) doesn't spill or drip on the shore.
(iv) All oil storage used on the construction sites should be held in locked and bunded containers.
(v) Excavated sand or other spoil from pipeline dredging operations should not be stockpiled on rocky shore areas but instead in areas of sand.
(vi) Care should be exercised if bulk liquid cement is used on the shore, as liquid cement can be detrimental to marine life if accidentally discharged.

3.6 References

D.W. Connor, J.H. Allen, N. Golding, K.L. Howell, L.M. Lieberknecht, K.O. Northern and J.B. Reker (2004) *The Marine Habitat Classification for Britain and Ireland Version 04.05© 2004* Copyright JNCC, Peterborough ISBN 1 861 07561 8 (internet version)

Plates Intertidal Transects at Ardmore (July 2005)

Plate 3 Ardmore: View upshore of Transect 1.

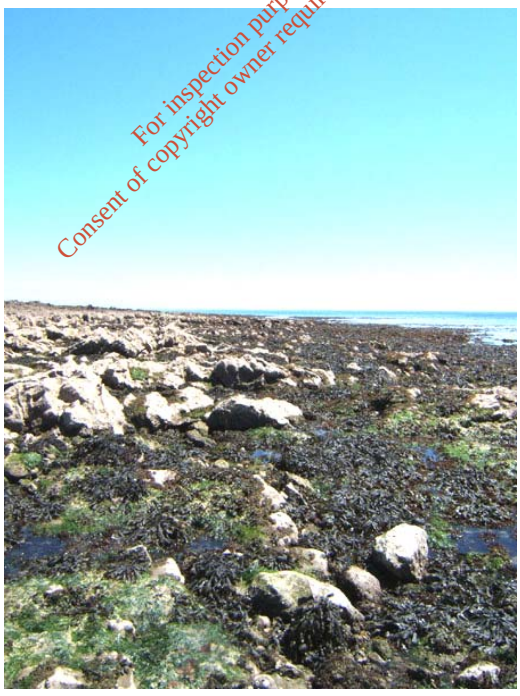


Plate 4 Ardmore: View of JNCC marine biotope Code: LR.LLR.F.Fserr.FS (Dense *Fucus serratus* on moderately exposed to very sheltered full salinity lower eulittoral rock) on lower shore of Transect 1.

Plate 5 View downshore of Transect 2

Plate 6 View of LR.FLR.Rkp.Cor.Cor (*Corallina officinalis* and coralline crusts in shallow eulittoral rockpools) on the lower part of Transect 2

APPENDIX 1

List of vascular plant species names recorded from WWTP sites and mentioned in the text.

Common name	Scientific name
Alder	*Alnus glutinosus*
Amphibious bistort	*Persicaria amphibia*
Annual meadow grass	*Poa annua*
Arum lily	*Arum maculatum*
Ash	*Fraxinus excelsior*
Barren brome	*Anisantha sterilis*
Barren strawberry	*Potentilla sterilis*
Bay laurel	*Laurus nobilis*
Beech	*Fagus sylvatica*
Bent grass	*Agrostis sp.*
Birch	*Betula sp.*
Bird's-foot trefoil	*Lotus corniculatus*
Black medick	*Medicago lupulina*
Black spleenwort	*Asplenium adiantum-nigrum*
Blackcurrant	*Ribes nigrum*
Blackthorn	*Prunus spinosa*
Bluebell	*Hyacinthioides non-scripta*
Bog stitchwort	*Stellaria alsine*
Bracken	*Pteridium aquilinum*
Bramble	*Rubus fruticosus agg.*
Broad-leaved dock	*Rumex obtusifolius*
Brooklime	*Veronica beccabunga*
Buddleja	*Buddleja davidii*
Bugle	*Ajuga reptans*
Burnet rose	*Rosa pimpinellifolia*
Bush vetch	*Vicia sepium*
Charlock	*Sinapsis arvensis*
Cherry	*Prunus sp.*
Cleavers	*Galium aparine*
Clematis	*Clematis vitalba*
Cocksfoot	*Dactylis glomerata*
Common cat's-ear	*Hypochaeris radicata*
Common chickweed	*Stellaria media*
Common dog-violet	*Viola riviniana*
Common duckweed	*Lemna minor*
Common mouse-ear	*Cerastium fontanum*
Common osier	*Salix viminalis*
Common polypody	*Polypodium vulgare*
Common reed	*Phragmites australis*
Common water plantain	*Alsima plantago-aquatica*
Common water Starwort	*Callitriche stagnalis*
Common valerian	*Valeriana officinalis*
Cotoneaster	*Cotoneaster sp.*
Cow parsley	*Anthriscus sylvestris*
Creeping bent	*Agrostis stolonifera*
Creeping buttercup	*Ranunculus repens*
Creeping cinquefoil	*Potentilla reptans*
Creeping soft-grass	*Holcus mollis*
Creeping thistle	*Cirsium arvense*

Cut-leaved crane's-bill *Geranium dissectum*

Appendix 1 contd:

Common name	**Scientific name**
Curled dock	*Rumex crispus*
Cypress	*Chamaecyparis sp.*
Daisy	*Bellis perennis*
Dandelion	*Taraxacum officinale*
Docks	*Rumex sp.*
Dove's-foot crane's-bill	*Geranium molle*
Elder	*Sambucus nigra*
Elm	*Ulmus sp.*
English stone-crop	*Sedum anglica*
Erect bur-reed	*Sparganium erectum*
Escallonia	*Escallonia macrantha*
European larch	*Larix decidua*
False brome	*Brachypodium sylvaticum*
False oat-grass	*Arrhenatherum elatius*
Field horsetail	*Equisetum arvensis*
Field madder	*Sherardia arvensis*
Field wood-rush	*Luzula campestris*
Floating sweet-grass	*Glyceria fluitans*
Fool's watercress	*Apium nodiflorum*
Foxglove	*Digitalis purpurea*
Fuchsia	*Fuchsia magellanica*
Fumitory	*Fumaria sp.*
Germander speedwell	*Veronica chamaedrys*
Glaucous sedge	*Carex flacca*
Gorse	*Ulex europaeus*
Great willowherb	*Epilobium hirsutum*
Greater bird's-foot trefoil	*Lotus pedicularis*
Greater plantain	*Plantago major*
Greater reedmace	*Typha latifolia*
Greater stitchwort	*Stellaria holostea*
Ground ivy	*Glechoma hederacea*
Groundsel	*Senecio vulgaris*
Gypsywort	*Lycopus europaeus*
Hard fern	*Blachnum spicant*
Hard rush	*Juncus inflexus*
Hart's tongue fern	*Phyllitis scolopendrium*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Hedge mustard	*Sisymbrium officinale*
Hedge woundwort	*Stachys sylvatica*
Herb Robert	*Geranium robertianum*
Hogweed	*Heracleum sphondylium*
Holly	*Ilex aquilifolium*
Honeysuckle	*Lonicera periclymenum*
Horse chestnut	*Aesculus hippocastanum*
Ivy	*Hedera helix*
Ivy-leaved speedwell	*Veronica hederifolia*
Ivy-leaved toadflax	*Cymbalaria muralis*
Kidney vetch	*Anthyllis vulneraria*
Knapweed	*Centaurea nigra*
Lady fern	*Athyrium felix-femina*
Lady's bedstraw	*Galium verum*

Lady's smock	*Cardamine pratensis*

Appendix 1 contd:

Common name	**Scientific name**
Lesser celandine	*Ranunculus ficaria*
Lesser pond-sedge	*Carex acutiformis*
Lesser trefoil	*Trifolium dubium*
Maidenhair spleenwort	*Asplenium trichomanes*
Marsh bedstraw	*Galium palustre*
Marsh foxtail	*Alopecurus geniculatus*
Marsh marigold	*Caltha palustris*
Marsh thistle	*Cirsium palustre*
Meadow foxtail	*Alopecurus pratensis*
Meadow vetchling	*Lathyrus pratensis*
Meadowsweet	*Filipendula ulmaria*
Mint	*Mentha sp (cf longifolia)*
Montbretia	*Crocosmia aurea x C. pottsii*
Navelwort	*Umbilicus rupestris*
Nettle	*Urtica dioica*
Oak	*Quercus robur*
Opposite-leaved pondweed	*Groenlandia densa*
Pellitory-of-the-wall	*Parietaria judaica*
Pendulous sedge	*Carex pendula*
Perennial rye-grass	*Lolium perenne*
Perennial sow thistle	*Sonchus arvensis*
Primrose	*Primula vulgaris*
Purple moor-grass	*Molinia caerulea*
Ragwort	*Senecio jacobaea*
Red clover	*Trifolium pratense*
Red fescue	*Festuca rubra*
Redshank	*Persicaria maculosa*
Reed canary-grass	*Phalaris arundinacea*
Remote sedge	*Carex remota*
Rhododenron	*Rhododendron ponticum*
Ribwort plantain	*Plantago lanceolata*
Rose	*Rosa sp.*
Rough meadow grass	*Poa trivialis*
Rusty willow	*Salix cinerea ssp. oleifolia*
Scaly male fern	*Dryopteris affinis*
Scot's pine	*Pinus sylvestris*
Sharp-flowered rush	*Juncus acutiflorus*
Shining crane's-bill	*Geranium lucidum*
Silverweed	*Potentilla anserina*
Soft brome	*Bromus hordaceus*
Soft rush	*Juncus effusus*
Sorrel	*Rumex acetosa*
Squirreltail fescue	*Vulpia bromoides*
Smooth hawk's-beard	*Crepis capillaris*
Smooth meadow grass	*Poa pratensis*
Smooth sow thistle	*Sonchus oleraceus*
Snowberry	*Symphoricarpos alba*
Soft shield fern	*Polystichum setifera*
Spear thistle	*Cirsium vulgare*
Spiked water-milfoil	*Myriophyllum spicatum*
Spurge	*Euphorbia sp.*
Summer snowflake	*Leucojum aestivum*

Sweet vernal grass	*Anthoxanthum odoratum*

Appendix 1 contd:

Common name	**Scientific name**
Sycamore	*Acer pseudoplatanus*
Thistles	*Cirsium sp.*
Three-cornered leek	*Allium triquetum*
Three-nerved sandwort	*Moehringia trinervia*
Thrift	*Armeria maritima*
Thyme-leaved speedwell	*Veronica serpyllifolia*
Tutsan	*Hypericum androsaemum*
Wall-rue	*Asplenium ruta-muraria*
Wavy bitter-cress	*Cardamine flexuousa*
Water crowfoot	*Ranunculus sp.*
Water dropwort	*Oenanthe crocata*
Water figwort	*Scrophularia auriculata*
Water horsetail	*Equisetum fluviatile*
Water mint	*Mentha aquatica*
Watercress	*Rorippa nasturtium-aquatica agg.*
White clover	*Trifolium repens*
Wild angelica	*Angelica sylvestris*
Wild carrot	*Daucus carota*
Wild celery	*Apium graveolens*
Wild privet	*Ligustrum vulgare*
Wild radish	*Raphanus raphanistrum*
Willow species	*Salix sp.*
Willowherb	*Epilobium sp.*
Winter heliotrope	*Petasites fragans*
Wood avens	*Geum urbanum*
Wood sage	*Teucrium scorodonia*
Wood sorrel	*Oxalis acetosella*
Wych elm	*Ulmus glabra*
Yarrow	*Achillea millefolium*
Yellow archangel	*Lamiastrum galeobdolon spp. argentatum*
Yellow iris	*Iris pseudocorus*
Yellow pimpernel	*Lysimachia nemorum*
Yorkshire fog	*Holcus lanatus*

APPENDIX 2

EVALUATION OF ECOLOGICAL IMPORTANCE AND ASSESSMENT OF IMPACT SIGNIFICANCE

This methodology for evaluation of ecological importance is adapted from RPS Consultants (2001).

The criteria shown below are based on an international-national-county-local scale. The local scale is approximately equivalent to one 10 km square but can be operationally defined to reflect the character of the area of interest. For example, for riparian features it could be a section of a river catchment. Because most sites will fall within the local scale, this is sub-divided into high local importance-local importance-local value.

Table E2.1 Criteria for assessing ecological importance

Importance	Criteria
International	Sites which qualify for designation as SACs or SPAs
National[1]	Sites which qualify for designation as NHAs Sites which hold Red Data Book (Curtis and McGough, 1988) plant species Sites which hold nationally rare invertebrate species, subject to an evaluation as to whether their known status may be largely due to under-recording Sites which hold nationally rare vertebrate species (as defined by Whilde, 1993) Sites which hold nationally important bird populations (defined as 1% of the national population; Sheppard, 1993)
County	Sites which hold nationally scarce plant species (recorded from less than 65 10 km squares[2]), unless they are locally abundant Sites which hold nationally scarce invertebrate species (recorded from less than 65 10 km squares), unless they are locally abundant and subject to an evaluation as to whether their known status may be largely due to under-recording Sites which hold regionally scarce vertebrate species Sites which hold semi-natural habitats likely to be of rare occurrence within the county Sites which hold the best examples of a semi-natural habitat type within the county
High Local Importance	Sites which hold semi-natural habitats and/or species likely to be of rare occurrence within the local area Sites which hold the best examples of a semi-natural habitat type within the local area
Local Importance	Sites which hold high quality semi-natural habitats
Local Value	Any semi-natural habitat

[1] the island of Ireland.
[2] based pro-rata on the British criteria of 100 10 km squares (JNCC, 1995).

Assessment of Impact Type and Magnitude

Criteria for assessing impact type and magnitude are presented in Tables E2.2 and E2.3, respectively.

Table E2.2 Criteria for assessing impact type

Impact type	Criteria
Positive impact:	A change to the ecology of the affected feature that improves its conservation status.
Negative impact:	A change to the ecology of the affected feature that reduces its conservation status.

Appendix 2 contd:

Table E2.3 Criteria for assessing impact magnitude

Impact magnitude	**Definition**
No change:	No discernible change in the ecology of the affected feature.
Imperceptible Impact:	A change in the ecology of the affected site, the consequences of which are strictly limited to within the development boundaries.
Slight Impact:	A change in the ecology of the affected site which has noticeable ecological consequences outside the development boundary, but these consequences are not considered to significantly affect the distribution and/or abundance of species or habitats of conservation importance[1].
Moderate Impact:	A change in the ecology of the affected site, which has noticeable ecological consequences outside the development boundary. These consequences are considered to significantly affect the distribution and/or abundance of species or habitats of conservation importance.
Substantial Impact:	A change in the ecology of the affected site, which has noticeable ecological consequences outside the development boundary. These consequences are considered to significantly affect species or habitats of high conservation importance and to potentially affect the overall viability of those species or habitats in the wider area[2].
Profound Impact:	A change in the ecology of the affected site, which has noticeable ecological consequences outside the development boundary. These consequences are considered to be such that the overall viability of species or habitats of high conservation importance in the wider area[2] is under a very high degree of threat (negative impact) or are likely to increase markedly (positive impact).

[1] it is not possible to define specific numerical thresholds, as different species/habitat have varying degrees of resilience to ecological perturbation.
[2] i.e., the area relevant to the assessed importance of the feature.

References

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Whilde, A. (1993). Threatened Mammals, Birds, Amphibians and Fish in Ireland. Irish Red Data Book 2: Vertebrates. HMSO, Belfast.

APPENDIX 3

Subtidal macrobenthic species and their densities (densities are expressed per $0.1m^2$).

	S1	S2	S3	S4	S5	S6
Ampelisca sp.	1					
Bathyporeia pelagica	3	1	5	11		2
Bodotria scorpioides		1		4		1
Chaetozone setosa	3				1	
Diastylis bradyi			1			
Echinocardium cordatum					1	2
Eteone longa					1	
Fabulina fabula	17	11	2		27	11
Glycera lapidum			1			
Iphinoe trispinosa	6	11		2	2	1
Lagis koreni						
Magelona mirabilis	10	5	1		5	1
Metapohoxus fultoni					1	
Nephthys cirrosa	3	4	1	2	4	
Perioculodes longimana		1				1
Pontocrates araenarius	1					
Donax vittatus		1				
Actaeon tornalis	1					
Pholoe inornata	1					
Angulus tenuis				1		
Malacoceros vulgaris				1		

	S7	S8	S9	S10	S11	S12
Bathyporeia pelagica	3	3	5	3	8	3
Bodotria scorpioides	1				1	
Chaetozone setosa	1	2				
Clausinella fasciata						
Diastylis bradyi	1	2	3		1	3
Fabulina fabula	5	17	9	16		8
Glycera lapidum				1		
Iphinoe trispinosa	9	10	13	4	3	1
Magelona mirabilis	11	10	6	7		
Nephthys cirrosa	1	1	1	1		1
Perioculodes longimana			1		1	7
Pontocrates araenarius	1		1			
Donax vittatus		2				1
Lucinoma borealis				1		
Megalopurus agilis				1		
Spio filicornis					1	
Gammarus locusta					4	

Appendix 3 contd:

	S13	S14	S15	S16	S17	S18
Bathyporeia pelagica	2	3	2	2	6	4
Bodotria scorpioides	1					
Chaetozone setosa		2	6	1	2	
Clausinella fasciata		2				
Diastylis bradyi	2	2				
Eteone longa	1					
Fabulina fabula	6	19	4	4	34	3
Glycera lapidum			2			
Iphinoe trispinosa	7	28	1	4	9	
Magelona mirabilis	3	3	6	1	7	
Natica catena			1			
Nephthys cirrosa	4	4	2	1	10	2
Perioculodes longimana	1					
Pontocrates araenarius		4			1	
Scoloplos armiger			1			
Donax vittatus					2	1
Owenia fusiformis					3	
Atylus swammerdammi						3

	S19	S20	S21	S22	S23	S25
Acidostoma obesum					1	
Ampelisca sp.			1		4	
Ampharete sp.					2	
Bathyporeia pelagica	4	3		1		1
Chaetozone setosa	1					
Clausinella fasciata	1	1	1			
Diastylis bradyi	1	2				
Ensis sp					1	
Fabulina fabula	22	17	31	8		25
Glycera lapidum			3			1
Iphinoe trispinosa	24	16		3		1
Lagis koreni					1	
Magelona mirabilis	2	7	1	2		
Nephthys cirrosa	3	3	7	3	1	2
Perioculodes longimana				2		
Pontocrates araenarius	5		1			
Pygospio filiformis			3			
Donax vittatus		1		1		
Lucinoma borealis		1				

APPENDIX 4 Ardmore Bay: Subtidal granulometric and organic matter results.

	V Fine Gravel	V Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	V Fine Sand	Mud	% Organics	Classification	Depth to CD
Ardmore1	0.0%	0.6%	0.5%	2.7%	37.0%	57.8%	1.5%	1.1	Sand	6.3m
Ardmore2	0.0%	0.4%	0.7%	2.5%	59.1%	36.6%	0.7%	1.1	Sand	5.5m
Ardmore3	0.0%	0.7%	2.0%	14.0%	71.2%	11.9%	0.3%	0.9	Sand	2.7m
Ardmore4	0.0%	1.7%	3.0%	9.3%	60.3%	12.9%	12.9%	1.0	Muddy Sand	2.1m
Ardmore5	0.0%	0.5%	1.1%	6.9%	41.8%	47.5%	2.2%	1.2	Sand	6.2m
Ardmore6	0.9%	0.0%	0.8%	4.8%	41.3%	49.7%	2.4%	1.1	Slightly Gravelly Sand	6.2m
Ardmore7	0.0%	0.4%	1.0%	1.8%	39.6%	54.4%	2.8%	1.0	Sand	5.9m
Ardmore8	0.0%	0.3%	1.3%	1.9%	40.7%	52.1%	3.6%	1.1	Slightly Gravelly Sand	6.2m
Ardmore9	0.0%	0.6%	2.4%	7.7%	47.6%	40.6%	1.0%	1.0	Sand	4.9m
Ardmore10	0.0%	0.3%	0.4%	5.5%	44.8%	47.9%	1.1%	1.1	Sand	6.4m
Ardmore11	0.0%	0.0%	0.8%	5.0%	70.4%	23.8%	0.0%	1.1	Sand	2.4m
Ardmore12	0.0%	0.7%	1.5%	2.7%	54.5%	40.2%	0.4%	0.9	Sand	2.7m
Ardmore13	0.3%	0.3%	1.0%	5.0%	61.1%	31.4%	0.9%	1.1	Slightly Gravelly Sand	3.1m
Ardmore14	0.3%	0.3%	2.3%	4.5%	43.9%	47.5%	1.2%	1.1	Slightly Gravelly Sand	4.0m
Ardmore15	0.0%	0.4%	0.6%	6.9%	33.5%	53.4%	5.1%	1.6	Sand	9.2m
Ardmore16	0.0%	0.0%	1.6%	2.9%	57.4%	37.4%	0.8%	1.3	Sand	3.0m
Ardmore17	0.0%	0.2%	0.8%	9.0%	51.0%	36.9%	2.1%	1.1	Sand	2.7m
Ardmore18	0.0%	0.2%	0.7%	2.1%	61.8%	34.3%	1.0%	1.0	Sand	1.2m
Ardmore19	0.0%	0.3%	0.5%	2.2%	50.6%	45.4%	0.8%	1.2	Sand	3.3m
Ardmore20	0.0%	0.2%	0.6%	2.8%	62.4%	32.6%	1.4%	1.1	Sand	2.5m
Ardmore21	0.0%	1.6%	6.6%	14.8%	30.4%	42.4%	4.2%	1.7	Sand	3.8m
Ardmore22	0.4%	0.5%	0.8%	2.1%	51.0%	44.6%	0.7%	1.1	Slightly Gravelly Sand	1.9m
Ardmore23	0.0%	0.3%	1.9%	4.2%	18.7%	55.8%	19.2%	2.0	Muddy Sand	13.0m
Ardmore25	0.0%	1.6%	5.8%	13.4%	60.5%	17.5%	1.2%	1.0	Sand	7.5m

APPENDIX 5 Intertidal Macrobenthic species at Ardmore and their densities (densities are expressed per 0.028m^2)

	Arenicola marina	*Scoloplos armiger*	*Eteone longa*	*Spio filifromis*	*Nephtys* sp.	*Idotea* sp.	*Eurydice pulchra*	*Haustorius arenarius*	*Bathypor eia* sp.	*Tellina tenuis*
Ardmore Intertidal 1	2	17	1	-	-	1	-	1	-	-
Ardmore Intertidal 2	-	2	-	-	2	-	-	2	5	1
Ardmore Intertidal 3	-	-	-	-	-	-	-	-	1	-
Ardmore Intertidal 4	-	22	2	-	-	-	-	3	26	1
Ardmore Intertidal 5	-	-	1	4	1	-	-	-	2	4
Ardmore Intertidal 6	-	-	-	-	4	-	1	-	1	20

APPENDIX 6 Intertidal granulometric and organic matter results from Ardmore sites.

	V Fine Gravel	V Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	V Fine Sand	Mud	% Organics	Classification
Ardmore Intertidal 1	0.2%	0.2%	6.1%	41.6%	49.0%	1.4%	1.6%	1.5	Slightly Gravelly Sand
Ardmore Intertidal 2	0.0%	0.8%	7.6%	44.0%	43.2%	2.9%	1.5%	1.7	Sand
Ardmore Intertidal 3	1.1%	13.4%	42.5%	38.9%	2.0%	1.2%	0.9%	1.3	Slightly Gravelly Sand
Ardmore Intertidal 4	0.0%	0.2%	3.5%	13.9%	79.5%	2.6%	0.3%	1.3	Sand
Ardmore Intertidal 5	1.3%	3.6%	7.1%	14.7%	68.5%	2.9%	1.8%	1.4	Slightly Gravelly Sand
Ardmore Intertidal 6	0.0%	0.8%	2.1%	7.7%	84.8%	3.6%	1.0%	1.4	Sand