Appendix 2: Larne Lough Wintering Bird Desktop Study

RPS Planning & Environment

Larne Lough Wintering Bird Desk Study

REVISED ISSUE: 1

November 2008

DOCUMENT CONTROL

Client	RPS Engineers
Project Title	Portland Gas Northern Ireland
Document Title	Larne Lough Wintering Bird Desk Study
Document Ref.	NI 1024 Portland Gas NI

Rev.	Status	Author	Reviewed By	Approved By	Office of Origin	Issue Date
R01	Revision	R. Fennelly	J. McCrory	R. Holbeach	RPS Planning & Environment	05/11/2008

RPS Planning & Environment

TABLE OF CONTENTS

Figures

1.0 INTRODUCTION

This Desk study is a review of all existing ecological data relating to wintering birds at Larne sea Lough and Island Magee, Co. Antrim. It is envisaged that this desk study will form part of an Environmental Impact Assessment (EIA) for a proposed Gas Storage Facility beneath the surface of Larne Lough.

Reference to breeding species is made occasionally in the text, where such species have been fundamental in the designation of sites within the study area as important. The study area contains internationally important breeding sites, particularly for Terns, and there are notable breeding seabird colonies on the north and eastern coasts by the Lough. However this report deals exclusively with wintering bird use. Any further study should implicitly detail breeding records.

1.1 The Study Area

As the proposed project plans to drill underneath Larne Lough, the study area includes the entire area covered by the Lough as advised by Environmental Heritage Service (EHS). The area of the Lough amounts to approximately 13km^2. Collation of existing records also includes those within a 1km buffer zone around Larne Lough and around the existing power station, where the new buildings associated with the gas storage facility will be housed (Figure 1). The precise boundary of Larne Lough is taken to be coincident with the boundary of WEBS surveys (Figure 1). In total the study area measures approximately 47.5km^2. The buffer area ensures a cautious attitude to potential impacts of the proposed development on wintering birdlife, which may have indirect impacts on the surrounding landscape outside of the Lough. The buffer has been extended to 2km only when considering conservation designations (section 3.1).

1.2 Scope of Desk Study

The desk study will detail the following elements within the study area:

- Identification of all wintering bird species recorded from the Lough, and 1km buffer area.
- Identification of habitat types in the study area and all relevant environmental information
- Identification of all protected bird species and habitats at national and international level
- Analysis of coverage and quality of existing data
- Identification of gaps in survey data that require additional survey

1.3 Protection and Conservation status

The following terms relating to the current conservation and protection status of birds and habitats in Northern Ireland are used in this report

Protected Species

- All breeding birds are protected by Part II, Article 4 of the Wildlife (Northern Ireland) Order 1985 (S.I. 1985/171) as amended from 1st February-31st August.

- The Wildlife Order Northern Ireland 1985 (S.I. 1985/171), as ammended additionally lists bird species on Schedule 1 which are protected at all times

- The EC Wild Birds Directive (79/409/EEC) lists birds protected on Annex 1 which are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. These, meet one or more of the following criteria
  - In danger of extinction
  - Vulnerable to specific changes in their habitat
  - Considered rare because of small populations or restricted local distribution
  - Requiring particular attention for reasons of the specific nature of their habitat.

- *Internationally important* numbers of a bird species are 1% or more of the international population (BTO, UK). These populations enable a site to satisfy certain criterion required for a site to be designated and thus protected.

- *Nationally important* numbers of a bird species are 1% or more of the national population (BTO, UK). These populations enable a site to satisfy certain criterion required for a site to be designated and thus protected.

. Conservation Status

- *Amber-listed species* (Lynas et al., 2007) are not protected, but are of Medium conservation concern in Ireland. There are separate breeding and passage/wintering lists. Species must meet one of the following criteria
  - Their breeding population has declined by 25%-50% in the last 25 years.
  - They are rare or sporadically breeding species
  - Their breeding or wintering population is internationally important and/or localised
  - They have an unfavourable conservation status in Europe

- *Red-listed species* (Lynas et al., 2007) are not protected, but are are of High conservation concern in Ireland. There are separate breeding and passage/wintering lists. Species meet one of the following criteria:
  - Their breeding population or range has declined by more than 50% in last 25 years
  - Their breeding population has undergone a significant decline since 1900
  - They are of global conservation concern

- *Northern Ireland Priority Species* (EHS) are not protected, but are species under threat that meet any one of the following 7 criteria:
  - Listed as a UK Priority Species.
  - Rapid decline (2% per year).
  - Decline (1% year) with Northern Ireland being a stronghold (S) consisting of either
    - >50% Irish population or
    - >20% UK population/range

    - or with the Irish or UK population restricted to Northern Ireland

  - Rare - confined to a small population of one or two sites in Northern Ireland with Northern Ireland being a stronghold consisting of either

- >50% Irish population or
- >20% UK population/range

- or with the Irish or UK population restricted to Northern Ireland

- At least 20% of international population of species or well-recognised subspecies occurring in Northern Ireland.
- Irish Red Data Book (RDB) species classed as critically endangered, endangered or vulnerable.

- Red-listed species in either Ireland or the UK Birds of Conservation Concern (BOCC) lists.

- *Northern Ireland Priority Habitats*

  The Northern Ireland biodiversity Group (NIBG) identified issues affecting biodiversity in Northern Ireland and proposed a number of specific recommendations in response to international commitments to biodiversity conservation. In response, the Environment and Heritage Service (EHS), Department of Environment (DoE) produced the Northern Ireland Biodiversity Strategy and a list of Northern Ireland Priority Species and Habitats. Those UK priority habitats that occur in Northern Ireland are considered to be automatically selected as priority habitats in Northern Ireland. There are 37 such habitats which are already the subject of costed action plans at UK level

2.0 METHODOLOGY

An experienced ecologist was engaged to review the existing ecological and anecdotal information for the study area.

2.1 Consultation

Consultation was undertaken with

- The Royal Society for the protection of Birds (RSPB)
- The British Trust for Ornithology (BTO)
- The Centre for Environmental Data and Recording (CEDaR)
- The EHS
- The Joint Nature Conservation Committee (JNCC)

All correspondence is presented in Appendix 1 of this report

2.2 Results of Consultation

2.2.1 Survey Data

Consultation resulted in the following sources of wintering bird records (Appendix 2).

1. Wetland Bird Surveys (WeBS; BTO) for wintering birds

2. Non- Estuarine coastal Waterbird Surveys (NEWS; BTO) for wintering birds (see Section
3. CEDaR Data (EHS) for all birds
4. Northern Ireland Lake Survey data (EHS)
5. Neither RSPB nor JNCC held no wintering bird records for the study area

Please note that due to copyright considerations, the WEBS datasets in Appendix 1 of this report must not be published or publicly distributed without consultation with BTO. An analysis of the coverage and quality of these data sets is provided in section 4.

2.2.2 General Environmental Data

All environmental data and anecdotal information relevant to birds was collated, and the location and nature of any designated sites within the study area were researched in detail. Reference was made to the following Websites:

- Ulster Museum Website;
- EHS (NI) Website;
- BTO Website;
- WEBS Website and Data Request Overview Document;
- CEDaR Website;
- Joint Nature Conservation Committee (JNCC) Website;
- UK biodiversity Action Plan Website;
- Teagasc Website (RSPB & BirdwatchIreland All-Ireland conservation status):
    - http://www.client.teagasc.ie/environment/natural_heritage/Birds_of_conservation_concern_in_Ireland.asp

Legislation:

- The Freshwater Fish Directive (78/659/EEC)
- The EC Wild Birds directive (Council Directive 79/409/EEC).
- The Wildlife and Countryside Act 1981;
- The Wildlife (Northern Ireland) Order 1985, as ammended;
- The EC Habitats Directive (Council Directive 92/43/EEC)
- 'Biodiversity Strategy - Northern Ireland' (EHS, 2002);
- Department of Environment (DoE), 2002. Article 28 of the Environment (Northern Ireland Order) 2002. Declaration of area of special scientific interest at the Gobbins, County Antrim.
- The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003;
- Belfast Metropolitan Area Plan Draft Plan (BMAP) 2015 (DoE, 2001)
- Regional Development Strategy for Northern Ireland 2025 under SPG-Env 1.2

Further sources of literature are provided in the References section 6.

3.0 BASELINE CONDITIONS

3.1 Designated Sites

A number of designated ecological areas occur within Larne Lough itself, and within a 2km buffer zone. (Figure 2).

3.1.1 Larne Lough

The boundaries of the Larne Lough Ramsar site, Area of Special Scientific Interest (ASSI), and Special Protection Area (SPA) are all entirely coincident. In addition to the Larne Lough designations, Swan Island, which is located near the western Lough shore, approximately 750m northwest of Dalaradia Point was assigned its own SPA status in 1992, and is also home to the tiny area (0.04Ha) designated as Swan Island National Nature Reserve. A detailed document describing the conservation objectives of Larne Lough SPA and Larne Lough ASSI has been provided by EHS and is attached in Appendix 3 of this report.

Ramsar site

Larne Lough qualifies under Criterion 2 of the Ramsar convention by virtue of the numerous vulnerable and endangered Irish Red Data Book bird species, and under Criterion 3c by regularly supporting internationally important numbers of Light-bellied Brent Geese in winter (EHS Website, 2008).

SPA site

Larne Lough SPA qualifies under Article 4.1 of EC Directive 79/409 on the Conservation of Wild Birds by regularly supporting internationally important numbers of Light-bellied Brent Geese in winter. The extent of the habitat and the numerous roost site locations are additional selection features for Larne Lough. Swan Island qualifies under the same article because it supports nationally important breeding populations of 4 different Tern Species which are all EU Birds directive Annex 1 species (EHS Website, 2008).

ASSI site

Larne Lough has been designated an ASSI (Site no. RSAR003) by virtue of the diverse habitats found here ranging from artificial brackish lagoons in the northwest to mudflats, rocky shores and saltmarshes throughout. Additional selection features are nationally important wintering populations of:

- Goldeneye
- Great Crested Grebe
- Red-breasted Merganser
- Shelduck
- Redshank (EHS Website, 2008)

NNR site

Swan Island is a small National Nature Reserve off the western shore of Larne Lough, whose area (0.1ha) coincides with the Swan Island SPA. It therefore merits its designation for the same reasons as the Swan Island SPA (EHS Website, 2008).

3.1.2 2km Buffer Area

Assi

Castletown ASSI (Site no. ASSI193) is located approximately 1km southeast of the Lough (9.5km southeast of the proposed buildings). Casteltown is a series of four traditionally managed hay meadow fields containing species-rich dry grassland notable for plant diversity. This type of grassland provides valuable feeding and roosting sites for a range of animals, including birds and invertebrates; the variety of butterflies recorded at the ASSI include small copper and large numbers of meadow brown and common blue. (EHS Website, 2008)

Gobbins Cliffs proposed ASSI is located 2.2km east of the Lough at its nearest point, but is included here. It is an area of maritime cliffs and slopes, and Intertidal rock, and is located

along the eastern coast between Hills' Port and two-Mouthed Cave. At the time of the Seabird 2000 survey, the Gobbins held 1.6% of the all-Ireland populations of Kittiwakes and 1.1% of the all-Ireland populations of Razorbills. The site also supports the only mainland nesting Atlantic Puffins in Northern Ireland and significant populations of Fulmar, Cormorant, Shag and Common Guillemot. Peregrine Falcons also breed within the designated area (DoE, 2007). A detailed description of the site has been provided by EHS and is presented in Appendix 4 of this report.

Waterloo ASSI (Site No: ASSI084) is located approximately 0.5km northwest of the mouth of the Lough, and is designated for its geological rather than ecological features, and is home to some of the best and most accessible exposures of Upper Triassic and Lower Jurassic strata in Ireland (EHS Website, 2008).

Portmuck ASSI (Site no. ASSI177) is located approximately 3km northeast of the Lough at its nearest point (approximately 2.5km northeast of the proposed buildings). This site is valued for its geological formations, in particular the only exposure of the Cretaceous Hibernian Formation in Northern Ireland, and the only occurrence of the mineral sodalite in Ireland and the international type locality of Gobbinsite. The Isle of Muck which is a small island lincluded in this ASSI is home to seacliff and calcareous grassland habitats and consequently holds notable breeding seabird populations including Razorbill, Guillemot, Puffin, Kittiwake and Fulmar (EHS Website, 2008).

3.2 Non-Designated Sites

A number of non-designated ecological areas occur within the 2km buffer zone (Figure 2).
SLNCIs (Sites of Local Nature Conservation Importance) are local designations within Northern Ireland, and derive from the Regional Development Strategy for Northern Ireland 2025 under SPG-Env 1.2. They are designated in area plans and development plans, with the aim of managing suitable sites, particularly in urban and urban fringe locations, as Local Nature Reserves (LNRs), where habitat creation and conservation is combined with public access and environmental education (EHS Website, 2008).

The Bentra Wood SLNCI is located approximately 1km southwest of Larne Lough at its nearest point (9km south of the proposed buildings) and is characterised by woodland, grassland, scrub, stream, flushes (EHS Website, 2008).

The Antrim Coast (Black Head to Whitehead) SLNCI is approximately 1.5km southeast of the Lough at its nearest point (10km southeast of the proposed buildings) and is characterised by scrub, grassland and sea cliffs (EHS Website, 2008).

3.3 Designated Watercourses

Watercourses are designated within the terms of the Drainage (Northern Ireland) Order 1973, and the Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003. There is an unusually high diversity of dynamic freshwater systems in the study area. The river Glynn flows into the Lough on its western shore south of the village of Glynn, and is a 'River Water Body' protected for its drinking water, (EHS Website, 2008). It is also an economically significant Salmonid river (EHS Website, 2008), as is the Larne river that flows into the Lough north of Poguestown. The Slaughterford Water tidal river flows from Larne Lough south to its mouth at Castle Chichester.
In addition, Larne Lough is protected under the Shellfish Waters Directive (79/923/EEC) due to the economic significance of its shellfish stocks.

3.4 Designated Habitat types

Table 3.5 lists the diversity of habitats found on site, and their classification according to the JNCC Phase 1 Habitat Methodology (2003). The high diversity of coastal habitats provides potential for high bird diversity. Seven of the habitats are listed under Annex 1 of the EU Habitats Directive and are thus protected. Areas where these habitats occur automatically meet one of the criterion required for designation of a site under the EU Habitats directive. The Republic of Ireland Heritage Council have compiled a distinct habitat classification system for the Republic (Fossitt, 2000), and these have been included as a reference aid.

Most of the habitats in Table 3.4 are Priority Habitats (PH) for conservation in Northern Ireland and are subject to Northern Ireland Habitat Action Plans (NHP), despite not being legally protected.

Table 3.4 EU Protected, NI Priority and UK/ROI Classification of Habitat types in the study area

Habitat	JNCC	EU Annex 1	Northern Ireland
Arable lands	J1.1		
Fens	E3		PH
Hedgerows	J2		PH
Improved Grasslands	B4		
Inter-tidal Mudflats	H1.1		PH
Inter-tidal Boulders	H1.3		PH
Maritime Cliff and slopes	H8.1	Atlantic vegetated sea-cliffs (1230)	PH
Saline Lagoons/Saline Loughs	G1.6	Coastal lagoons (1150)	PH
Reed-beds	F2		PH
Rivers	G2		PH
Coastal Saltmarshes	H2	Numerous	PH
Sand, gravel and boulder beaches	H1.1		PH
Scrub	A2		
Seagrass beds			PH
Species-rich dry calcareous grasslands	B3.2	Semi-natural dry grasslands (6210)	PH
Shingle and gravel banks	H1.2	Perennial vegetation of stony banks (1120)	PH
Tidal Rivers/Rapids	G2.6	Estuaries (1130)	PH
Upland Mixed Ashwoods	A1.1.1		PH

3.5 Wintering Bird species in the Study Area

The following species lists have been collated from the sources cited in sections 2.2 and 6.0. In order to identify specific areas within the study where gaps in bird records exist, separate species lists are presented for Larne Lough (Table 3.5), and the broader study area that surrounds the lough in a 1km radius (Table 3.6). Species in Tables 3.5 and 3.6 protected on a European level are listed in Table 3.7. Please refer to section 1.2 for definition of terms relating to conservation and protection status.

Table 3.5 Bird Species recorded from September-March in Larne Lough with national protection and All Ireland Conservation status.

Common Name	Scientific Name	All Ireland Status	Protection
Arctic Tern	*Sterna paradisaea*	Amber (B)	WO
Bar-tailed Godwit	*Limosa lapponica*	Amber	
Bewick's Swan	Cygnus bewickii	Red (P/W)	WO
Black-headed Gull	*Larus ridibundus*	Red (B)	
Black-tailed Godwit	*Limosa limosa*	NI, Amber	
Black Swan	*Cygnus atratus*		
Chinese goose	*Anser cygnoides*		
Common Gull	*Larus canus*	Amber (B)	
Common Scoter	Melanitta nigra	NI, Red (B)	WO
Common Tern	Sterna Hirundo	Amber (B)	WO
Great Cormorant (nominate race)	*Phalacrocorax carbo carbo*	Amber (B)	
Curlew	*Numenius arquata*	NI, NP, Red (B)	
Curlew Sandpiper	*Calidris ferruginea*		
Dunlin	*Calidiris alpina*	Amber (B)	WO
Eider	*Somateria mollissima*	Amber	
Glaucous Gull	*Larus hyperboreus*		
Golden Plover	*Pluvialis apricaria*	Red (B)	
Goldeneye	*Bucephala clangula*	Amber (B)	
Goosander	*Mergus merganser*	Amber	WO
Great Northern Diver	*Gavia immer*		
Great Black-backed Gull	*Larus marinus*	Amber (B)	
Great-crested Grebe	*Podiceps cristatus*	Amber (B)	
Green Sandpiper	*Tringa ochropus*		
Greenland White-fronted Goose	*Anser albifrons flavirostris*		
Greenshank	*Tringa nebularia*		WO
Green-winged Teal	*Anas carolinensis*		
Grey Heron	*Ardea cinerea*		WO
Grey Plover	*Pluvialis squatarola*	Amber (W0)	
Greylag Goose	*Anser anser*	Amber (B)	
Herring Gull	*Larus argentatus*	Red (B), NI	
House Martin	*Delichon urbica*	Amber (B)	
Iceland Gull	*Larus glaucoides*		
Jack Snipe	*Lymnocryptes minimus*		
Kingfisher	*Alcedo atthis*	Amber (B)	WO
Knot	*Caldiris*	Red (P/W)	
Lapwing	*Vanellus vanellus*	NI, Red (B)	
Lesser Black-backed Gull	*Larus fuscus*	Amber (B)	
Light-bellied Brent Goose (East Canadian high Arctic population)	*Brenta bernicla hrota*	NI, Amber (B)	
Little Egret	*Egretta garzetta*		
Little Grebe	*Tachybaptus ruficollis*	Amber (B)	
Long-tailed Duck	*Clangula hyemalis*		
Little Gull	*Larus minutus*		

Mallard	*Anas platyrhynchos*		
Manx Shearwater	*Puffinus puffinus*	Amber (B)	
Mediterranean Gull	*Larus melanocephalus*	Amber (B)	
Moorhen	*Gallinula chloropus*		
Mute Swan	*Cygnus olor*	Amber (B)	
Oystercatcher	*Haematopus ostralegus*	Amber (B)	
Pink-footed Goose	*Anser brachyrhynchus*		
Pintail	*Anas acuta*	Red (P/W)	
Pochard	*Aythya farina*	Amber (B)	
Purple Sandpiper	*Calidris maritima*		
Red-necked Grebe	*Podiceps grisegena*		
Red-breasted Merganser	*Mergus serrator*		
Redshank	*Tringa totanus*	NI, NIP, Red (B)	
Red-throated Diver	*Gavia stellata*	Amber (B)	WO
Ruff	*Philomachus pugnx*		WO
Sandwich Tern	*Sterna sandvicensis*	Amber (B)	WO
Sanderling	*Calidris alba*		
Shag	*Phalacrocorax aristotelis*		
Shelduck	*Tadorna tadorna*	Amber (B)	
Shore Lark	*Eremophila alpestris*		
Slavonian Grebe	*Podiceps auritus*		
Smew	*Mergellus albellus*		
Snipe	*Gallinago gallinago*	Amber (B)	
Snow goose	*Anser Caerulescens*		
Spoonbill	*Platalea leucorodia*		
Spotted Redshank	*Tringa erythopus*		
Swallow	*Hirundo rustica*	Amber (B)	
Swift	*Apus apus*	Amber (B)	
Teal	*Anas crecca*	Amber (B)	
Tufted Duck	*Aythya fuligula*	Amber (B)	
Turnstone	Arenaria interpres		
Velvet Scoter	*Melanitta fusca*		
Wigeon	*Anas penelope*		
Whimbrel	*Numenius phaeopus*		WO
Whooper Swan	*Cygnus cygnus*	Amber (B)	WO
Wigeon	Anas Penelope	Amber (B)	
Wilson's Phalarope	*Phalaropus tricolor*		

NI – Northern Ireland Priority Species
NP – Northern Ireland Species Action Plan
Amber – Medium Conservation Concern in Ireland:
B= as breeding species; P/W as passage/wintering species
Red– High Conservation Concern in Ireland
B= as breeding species; P/W as passage/wintering species
WO–Schedule 1 of Wildlife Order (Northern Ireland), as ammended

Table 3.6 Bird Species recorded in 1km buffer outside Larne Lough with national protection and All Ireland Conservation status.

Common Name	Scientific Name	All Ireland Status	Protection
Barnacle Goose	*Branta leucopsis*	Amber (B)	
Blackcap	*Sylvia atricapilla*		
Bluetit	*Parus caeruleus*		
Brambling	*Fringilla montifringilla*		
Buzzard	*Buteo buteo*		WO
Carrion Crow	*Corvus corone corone*		
Chaffinch	*Fringilla coelebs*		
Chiffchaff	*Phylloscopus collybita*		
Dipper	*Cinclus cinclus*		
Fulmar	*Fulmarus glacialis*		
Gannet	*Sula bassana*	Amber (B)	
Garden Warbler	*Sylvia borin*		WO
Goshawk	*Accipiter gentilis*	Amber (B)	WO
Hoopoe	*Upupa epops*		
Long-tailed Tit	*Aegithalos caudatus*		
Merlin	*Falco columbarius*	Amber (B)	WO
Peregrine	*Falco peregrinus*		WO
Redwing	*Turdus iliacus*		
Ring-billed Gull	*Larus delawarensis*		
Ringed Plover	*Charadrius hiaticula*		
Rock Pipit	*Anthus petrosus*		
Sand Martin	*Riparia riparia*		
Scandinavian Rock Pipit	*Anthus petrosus littoralis*		
Snow Bunting	*Plectrophenax nivalis*		
Sparrowhawk	*Accipiter nisus*		WO
Tawny Owl	*Strix aluco*		
Tree Sparrow	*Passer montanus*	NI, Red (B)	
Twite	*Carduelis flavirostris*	NI, Red (B)	WO
Waxwing	*Bombycilla garrulus*		
Wheatear	*Oenanthe oenanthe*		
Woodcock	*Scolopax rusticola*	Amber (B)	
Yellowhammer	*Emberiza citrinella*	NI, Red (B)	

3.7 European Protected Bird Species

The following species present September-March in the Lough are additionally protected at all times on a European level by virtue of their listing on Annex I of the EC Wild Birds Directive (79/ 409/EEC):

Table 3.7 Birds Directive Annex I Protected avifauna recorded in the study area

Common Name	Scientific Name
Arctic Tern	*Sterna paradisaea*
Bar-tailed Godwit	*Limosa lapponica*
Golden Plover	*Pluvialis apricaria*

Goshawk	*Accipiter gentilis*
Great Northern Diver	*Gavia immer*
Kingfisher	*Alcedo atthis*
Little Egret	*Egretta garzetta*
Merlin	*Falco columbarius*
Red-throated Diver	*Gavia stellata*
Ruff	*Philomachus pugnx*
Shag	*Phalacrocorax aristotelis*
Slavonian Grebe	*Podiceps auritus*
Whooper Swan	*Cygnus cygnus*

As noted in section 3, the Lough also holds a number of 'important' (defined in section 1.2), populations of wintering birds, which have been instrumental in the protection of the site on national and/or international level. These populations are listed in Table 3.8:

Table 3.8 Birds regularly wintering in populations of National (N) or International (I) Importance on Larne Lough

Common Name	Scientific Name	Importance of Population
Common Gull	*Larus canus*	N
Golden Eye	*Bucephala clangula*	N
Great-Crested Grebe	*Podiceps cristatus*	N
Greenshank	*Tringa nebularia*	N
Light-bellied Brent Goose (East Canadian high Arctic population)	*Brenta bernicla hrota*	N, I
Red-breasted Merganser	*Mergus serrator*	N
Redshank	*Tringa totanus*	N
Shelduck	*Tadorna tadorna*	N

4.0 COVERAGE OF EXISTING DATA

4.1 WeBS Data

WeBS is a joint scheme of the BTO, the Wildfowl & Wetlands Trust, the RSPB, and the JNCC. All WEBS data is divided into two separate national schemes; which both survey non-breeeding water birds.

4.1.1 Core Counts

Core counts are made once monthly at high tide, usually on pre-selected dates, focusing on the winter period from September-March. Core counts are the co-ordinated monthly counts of waterbirds (wildfowl and waders) on around 2,500 inland and coastal wetlands. Larne Lough is one of these listed wetlands, and core count data is available for the Lough.

Digital data sets are held from 1960-61 onwards but the most recent data was obtained for this desktop study in the form of *tabulated five-year synopses* for 2001-2006. Counts from several years are more representative than a single year's data, and these latest data provides the most up-to-date picture of bird use of the Lough. In consultation, EHS agreed this was the appropriate data on which to focus the current study.

This data provides:

- Total yearly counts for all species combined
- Average counts from five consecutive years for each species in each month
- Five-year peak monthly counts of each species
- Five-year autumn peak counts, and month in which this was recorded, for each species
- Five-year winter peak counts, and month in which this was recorded, for each species
- National and International importance of the site for each species

4.1.1a Coverage of Larne Core Counts

Due to the large size of the Lough, surveys were divided into two areas, centred on two survey points. Each survey area was further divided into a number of count sectors to facilitate comprehensive coverage of the whole lough area. Each survey point corresponds to the central location of one survey area. These central points are shown, along with the total coverage of both Core Count survey areas in Figure 1. Coverage, which totals approximately 13km^2 includes a small (1.14km^2) area in the mouth of the Lough, which includes Ferris and Browne's Bay east of the Lough mouth.

Two major coastal areas neglected by the surveys are

1. The rocky coastline that curves east from Skernaghan Point for approximately 2km until the northeastern site boundary
2. The area stretching north of Sandy Bay beach northwest of the mouth of the Lough.

In addition, as the surveys are restricted to wetland areas, the entire terrestrial zone around the lake within the 1km buffer is not covered.

4.1.1b Quality of Larne Core Counts

Complete counts are reliable estimates of bird abundances, while incomplete counts are considered under-estimates. Incomplete counts refer to surveys carried out in poor weather conditions, surveys in which the survey area was not observed in its entirety, surveys where counts were split into two days, or surveys completed by more than one recorder.

In Core count datasets, the completeness of each monthly count is simply described as *good* (>= 75% of birds present), or *poor* (<75% of birds present).

Analysis of the data reveals that for any species from 2001-2006, the completeness of counts is never poor more than one month a year, meaning that at least 86% of survey months in each year are complete.

A criticism of the WEBS data is that a number of species known to regularly winter at Larne Lough, are not recorded. Dempsey & O'Clery (2007) note the following ducks as wintering in Larne: Pochard (small numbers), Sanderling, and Tufted Duck (occasional), None of these are recorded in the 2001-2006 WEBS data, but have been observed on the Lough during this period by amateur birdwatchers as proven by CEDaR records. The WEBS data interpretation notes offer a range of reasons for possible oversights, including the likelihood that focusing counts at a few locations at high tide neglects the importance of other feeding areas at other stages of the tidal cycle. In any case, these species are not known to occur at Larne in large numbers, and so it is less likely that a WEBS recorder visiting the site only once a month will chance to record them. In addition, none of these species are red-listed, or Annex I protected, and so the discrepancies in species counts between WEBS, CEDaR, and Dempsey & O'Clery are considered not sufficient to warrant further surveys of the lake.

4.1.2 Low Tide Counts

The second WEBS scheme is Low Tide Counts. These are made monthly from November-February in most large estuaries in the UK. There are no Low Tide Count data available for Larne Lough.

4.2 NEWS Data

NEWS (The Non-Estuarine coastal Waterbird Survey) runs about every nine years (the last surveys being 1998 and 2007) and is a one-off count in mid-winter (typically January) to cover the areas that are not well counted by WeBS.

4.2.1a Coverage of NEWS Data

Coverage of the NEWS count areas for coastal areas nearest to Larne Lough is shown in Figure 1. All of the areas shown were counted during the last NEWS survey in January 2007.

Figure 1 shows that the coverage sufficiently fills both coastal gaps in WeBs core count data noted in section 4.1.1a. In particular NEWS covers the important stretch of rocky coastline that curves east from Skernaghan Point for approximately 2km until the northeastern site boundary, an area that holds notable numbers of seabirds including the Amber-listed Merlin (September-March), Gannet (September to December, and February-March) and Cormorant (September-March), which have all previously been recorded from Skernaghan Point, the Merlin as recently as October 2004 (CEDaR). Merlins occur in large populations on the coasts of Northern Ireland, and Merlin from Iceland and other northern countries join native birds to winter in low-lying coastal areas in Ireland (Cabot, 2004).

4.2.1b Quality of NEWS data

Quality of NEWS surveys was not be analysed.

4.3 CEDaR Data

CEDaR records were gathered for the Lough and a 1km buffer area. However in contrast to WEBS data, records for the period 1990 to 2006 were analysed. This time period was decided upon, because records from 2001-2006 would provide relatively little data, while records dating further back would be too time-intensive to interpret, and would be unrepresentative of the current and recent wintering bird use of the study area.

4.3.1a Coverage of CEDaR Data

CEDaR record GPS co-ordinates vary in their precision (4-6 digits), and the locations of records marked in Figure 1 are therefore often approximate. This lack of precision makes it impossible to ascertain whether numerous records from the same imprecise GPS location cover the entire area of the coordinates, or only one section of that area. Between 1990 and 2006, there were a total of 1091 records for the Lough and the 1km buffer area, with 76% of records for the buffer area, and 26% of records for the Lough itself. CEDaR record locations for this time period are distributed relatively evenly around the study area, but due to the small number of locations, there are large regular gaps where no records exist.

CEDaR holds no records for the entire eastern boundary of the study area, on Island Magee between Ballylumford and Old Church Bay. This 8km^2 area is largely agricultural land with scattered housing, which may offer suitable habitat for Twites, and Yellowhammers, both Red-listed and Northern Ireland Priority species that feed on weed seeds in agricultural land, which are both recorded by CEDaR n the 1km buffer area. The Twite has been recorded regularly since 1992 in the study area, and since Scottish flocks may boost resident Twite numbers in winter, there is potential for significant wintering populations of the species around the Lough. Yellowhammers are declining in northern Ireland due to a decrease in land under tillage (Cabot, 2004), but there are two records from Ballylumford from February

and March 2005. Only formal surveys of this area, and other coastal fields in the study area may reveal the actual numbers of wintering and breeding Yellowhammers and Twites here.

CEDaR also holds no records for the southern end of the study area, between Ballycarry to the west and Muldersleigh Hill to the east. This latter area may be of particular value to wintering birds because the Slaughterford Water tidal river extends south for 500m through this area. This river is listed as an asset and constraint in the BMAP 2015 (DoE, 2001). East of this tidal river, the species-rich grasslands of Castletown ASSI are found atop Muldersleigh Hill, which form one of the highest points in the study area at 130 metres above sea level. This area merits further survey as a possible wintering habitat for birds such as Skylarks (Northern Ireland Priority Species) and protected raptors such as Merlins and Peregrine falcons which may hunt over the open hilly grasslands.

4.3.1b Quality of CEDaR data

All 1091 records are from only 15 sites (Figure 1) and within this small number, many are represented by very few records, or even a single record (in the case of Glynn Hill Woods, cited only once for a Goshawk sighting). Ballycarry bridge accounted for the majority of records (50%), with Glynn (21%) also accounting for a large majority. The dataset therefore is a very uneven representation of the study area, and in many cases provides data on species recorded only due to their rarity within the site. This is the nature of CEDaR data, which offers a different service to formal survey data, however in the present context where extensive records are required for an entire site, the data contains gaps for many areas.

4.4 Northern Ireland Lake Survey data

During consultation with EHS, it was highlighted that research carried out by Queens University and EHS in the 1980's and 1990's (Smith et al., 2001) included surveys of some of the wetland areas surrounding the lake such as Glynn lagoon. However, time restricted analysis of this dataset, and in any case, given the time elapsed since its completion, these records are now outdated.

5.0 CONCLUSIONS AND RECCOMENDATIONS

5.1 Larne Lough

WEBS core count recorders have comprehensively covered wintering bird surveys in the period 2001-2006 on Larne sea Lough itself. The Larne Lough WeBS data is complete in terms of both the area covered, and quality of records obtained (although some less common species are understandably missing from surveys), and it is recommended that no additional surveying of the Lough be carried out. NEWS data sufficiently covers the gaps in coastal coverage of WeBS core counts.

5.2 1km BufferArea

The 1km buffer area of terrestrial sites around the Lough has not been sufficiently covered by wintering bird surveys. Surveys of some areas have been carried out by the Northern Ireland Lake Survey, but these surveys need updating. CEDaR data for this area indicates that there are a number birds of conservation concern regularly recorded here. In particular, there are two red-listed species; Twite (protected in Northern Ireland) and Yellowhammer. Many more amber and protected species are also recorded.

RPS therefore recommends that wintering surveys be carried out in these areas in 2008-2009.

6.0 REFERENCES

BTO, 1971. The Status of Birds in Britain and Ireland, Blackwell Scientific, UK.

BTO, 1976. The atlas of Breeding Birds in Britain and Ireland, T. & A.D. Poyser.

Cabot, D. 2004. Irish Birds, Collins, London.

Dempsey, E., & O'Clery, M. 2007. Finding Birds in Ireland. The Complete Guide, Gill & Macmillan, Dublin.

DoE, 2002. Article 28 of the Environment (Northern Ireland Order) 2002. Declaration of area of special scientific interest at the Gobbins, County Antrim.

Fossitt, J. (Ed). 2000. A Guide to Habitats in Ireland. The Heritage Council, Dublin.

Gibbons, D., Reid, J.B., Chapman, R. A. 1993. The New Atlas of Breeding Birds in Britain and Ireland, T. and A.D. Poyser.

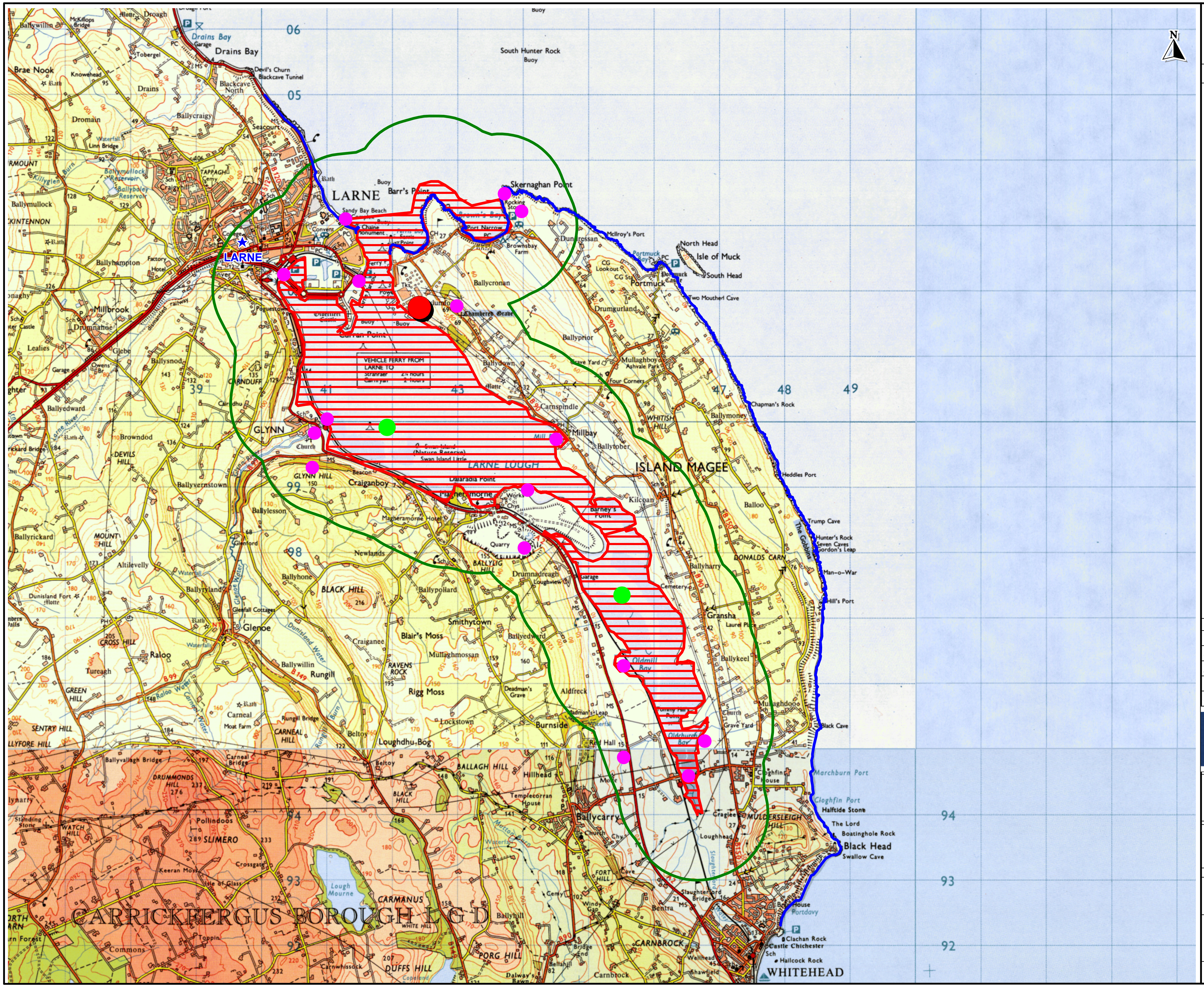
IEEM (2006) Guidelines for Ecological Impact Assessment in the UK, Institute of Ecology and Environmental Management, Winchester.

JNCC (2003). Handbook for Phase 1 Habitat Survey - a technique for environmental audit. Joint Nature Conservation Committee, Peterborough.

Lynas, P. 2007. The status of birds in Ireland: an analysis of conservation concern 2008-2013. Irish Birds 8: 149-167.

Smith, S. J., Wolfe-Murphy, S. and Gibson, C. E. (2001). Northern Ireland lake survey. Parts 1-7, Dept of the Environment, N. Ireland, Belfast.

Wernham, C.V., Toms, M.P., Marchant, J.H., Clark, J.A., Siriwardena, G.M. & Baillie, S.R. (eds). 2002. The Migration Atlas: movements of the birds of Britain and Ireland. T. & A.D., Poyser, London.



Notes 1. This drawing is the property of RPS Planning & Environment. It is a confidential document and must not be copied, used, or its contents divulged without prior written consent.

LEGEND

- Proposed Buildings
- WEBS Survey locations
- WEBS Survey Coverage
- Study Area (1km buffer around lake)
- CEDaR Record Locations (1990-2006)
- NEWS Survey Coverage (1998-2007)

Issue Details

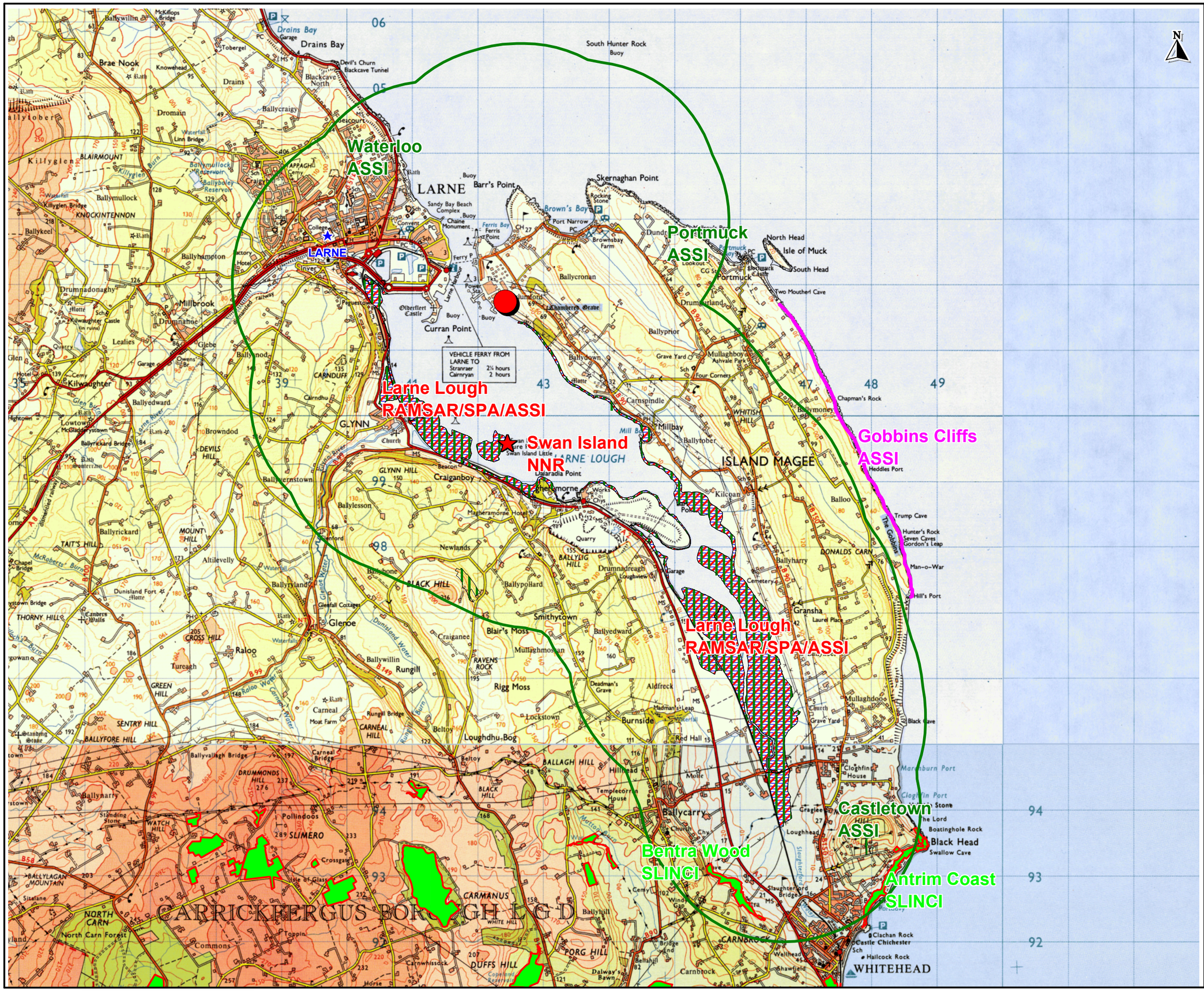
Drawn:	RF	No Window
Chkd:	SMCA	
Appd:	RH	
Date:	December 2007	
Scale:	1cm = 0.54 km	**Revision:** 01

RPS Planning & Environment

Project: Portland Gas

Title: Study area and Survey Coverage

Figure Number: 1



Notes 1. This drawing is the property of RPS Planning & Environment. It is a confidential document and must not be copied, used, or its contents divulged without prior written consent.

LEGEND

- 2km Buffer Area
- Proposed Buildings
- SPA
- ASSI
- Proposed ASSI
- Ramsar
- SLINCI
- National Nature Resrve

Issue Details

Drawn:	RF
Chkd:	SMCA
Appd:	RH
Date:	January 2008
Scale:	1cm = 0.54 km

RPS Planning & Environment

Revision: 01

No Window

Project: **Portland Gas**

Title: **Conservation Designations**

Figure Number: **2**

Appendix 1 Correspondence

EHS- RPS

From: Lynne Rendle [Lynne.Rendle@magni.org.uk]; on behalf of; cedar info [cedar.info@magni.org.uk]
Sent: 10 January 2008 14.16
To: Robert Fennelly
Subject: Larne Lough Bird surveys - Portland Gas Ltd - Proposed gas storage facility

EHS ref. CB15475

<<The Gobbins_maps.doc>> <<The Gobbins_citation & VAM.doc>>

Dear Robert

Re. Larne Lough Bird surveys – Portland Gas Ltd - Proposed gas storage facility

Thanks you for the further hard copy correspondence, after our phone call.

In any report you must make detailed mention of the Larne Lough Special Protection Area (SPA) and Area of Special Scientific Interest (ASSI) and the various selection features of the site.

With Larne Lough being a SPA under the EU Birds Directive, an article 6 assessment will have to be undertake for this project

Can I clarify some of the points generated from your letter.

Your first point suggests the WeBS bird counts having been made from only two survey points, these two BTO survey locations refer to the two whole shoreline sections of Larne Lough, for counting purposes the Lough is split into an inner and outer sections. In addition you have not indicated how many years of over-wintering bird data you have obtained fro the BTO. We would suggest looking at a five year data stream. Special reference should be made to the Light-Bellied Brent Goose population which over winter in the Lough

2. Again, further WeBS data would be available from the BTO. In addition, reference should be made to the breeding bird population; especially the Sandwich, Roseate and Common Tern population on the two off shore islands. I had suggested you contact the RSPB ecologist; Matthew Tickner over this. The RSPB may make a charge for this data. RSPB Belfast Office, Belvoir Park Forest, Belfast, BT8 7QT

3. Over the phone I talked to you about the proposed Gobbins ASSI (see attached information above). Your 2km search buffer would also bring in the Isle of Muck, which has a breeding seabird colony, information of the site would be available from the Ulster Wildlife Trust at 3 New Line, Crossgar, Co. Down, BT30 9EP

Many thanks,

Gregor

Gregor Watson

Conservation Science

Environment and Heritage Service

Klondyke Building

Cromac Avenue

Gasworks Business Park

Belfast

BT7 2JA

028 9056 9534

CEDaR-RPS

From: Lynne Rendle [Lynne.Rendle@magni.org.uk]; on behalf of; cedar info [cedar.info@magni.org.uk]
Sent: 21 December 2007 11:44
To: Robert Fennelly
Subject: Information Request

Hi Robert
I've checked the database and there are records for the above area. There will be charge of £45 + VAT (**£52.88 in total**) for the time taken to process this request. **Let me know if you are happy with this charge** and I will proceed with the collation and analysis of the data. Subject to receiving you remittance (made payable to MAGNI) and my getting the relevant permissions from the recorders, the data will be released to you in Excel form.
Feel free to contact me if you have any queries.
By the way, I'm off now until the 3rd Jan, for Christmas break. So have a good Christmas and a Happy New Year. Please pass on my best wishes to Suzanne as well.

Best wishes - Lynne

Lynne Rendle
Vertebrate Officer
CEDaR
National Museums Northern Ireland
153 Bangor Road
CULTRA
Co Down BT18 0EU

BTO-RPS

1)
From: Mark Collier
Sent: 17/01/2008 11:16
To: Robert Fennelly
Subject: Larne Lough NEWS Coverage

Dear Robert

Thank you for the map and letter regarding your data search in the Larne Lough area. As you are aware WeBS provides the best coverage for non-breeding waterbirds in the Lough, I see

that you have these data already. NEWS (The Non-Estuarine coastal Waterbird Survey) runs about every nine years (the last surveys being 2007 and 1998) and is a one-off count in mid-winter (typically January) to cover the areas that are not well counted by WeBS. I have attached a GIS shapefile of the count areas nearest to Larne Lough, some of these are outside of your 1km buffer but have included others so you can see for which areas data are available.

All of the areas shown in the attached file were counted during the last NEWS survey in January 2007. Data from this survey are currently being loaded and validated and should be available sometime in the summer.

I hope that these details of of use, if you have any further questions regading NEWS or WeBS then please let me know.
Yours sincerely

Mark Collier
WeBS Research Officer
British Trust for Ornithology, The Nunnery, Thetford, Norfolk IP24 2PU, UK
Tel: +44 (0)1842 750050, fax: +44 (0)1842 750030, Charity No 216652 www.bto.org

2)
From: Neil Calbrade [mailto:neil.calbrade@bto.org]
Sent: 04 January 2008 12:29
To: Robert Fennelly
Subject: Re: NEWS Data Request

Hi Robert,

Alex has now left the BTO, so I have taken over his responsibilities for data requests and low tide counts. I will ask Mark Collier who also deals with data requests to speak to the person who will know about the NEWS sites when he is back in on Monday and get him to contact you.

Regards,

Neil

3)
From: Neil Calbrade [mailto:neil.calbrade@bto.org]
Sent: 14 December 2007 11:44
To: Robert Fennelly
Subject: WeBS Data Request

Dear Robert,

Many thanks for your request regarding WeBS data. Due to the number of data requests we get, we require a data request form before we are able to provide a quote and provide data, though the attached guidance notes do provide some indication of cost depending on the number of sectors required.

For the core sections, it is now possible to find which sites are covered by WeBS through the WeBS website at:
http://www.bto.org/webs/sites/ we are still working on the low tide section.

With regard NEWS data, I am unsure which is the most up to date coverage for Northern Ireland and the person who would know is not in this today. I am out of the office next week,

but will speak to him when I get back and send you a map or shapefile of these areas but in the meantime if you could just add it to the data request form. If you need the information before I am I next in, please contact Mark Collier on mark.collier@bto.org who will be able to assist.

Please find attached a copy of the latest Wetland Bird Survey data request form and guidance notes. I would be grateful if you could return a completed form, I will then be able to check coverage and confirm any costs involved.

If you have any further questions then please feel free to contact me.

Yours sincerely

Neil Calbrade

WeBS Low Tide Count National Organiser
BTO
The Nunnery
Thetford
Norfolk
IP24 2PU

neil.calbrade@bto.org
01842-750050

4)
From: Neil Calbrade [mailto:neil.calbrade@bto.org]
Sent: 12 December 2007 16:25
To: Suzanne Lowry
Subject: WeBS Data Request

Dear Suzanne,

Please find attached the data for Larne Lough that you requested. You will also find an interpretation document to assist your understanding of the data provided. Please note that data are supplied in three different file formats (.rtf, .pdf and .htm) for your convenience. The information contained in each is the same.

An invoice for £820 +VAT will follow shortly by post.

If you have any questions regarding these data please get back in touch.

Yours sincerely

Neil Calbrade

RSPB-RPS

1)
From: Tickner, Matthew [Matthew.Tickner@rspb.org.uk]
Sent: 11 January 2008 17:39
To: Robert Fennelly
Subject: RE: Data request for Larne Lough

Dear Robert

Thank-you for your email. As suggested, I am primarily concerned with the monitoring of breeding birds on the islands in Larne Lough, so unfortunately don't have any recent information on wintering birds.

(I did collect a small amount of information on gulls - in about 1994-5 I believe - which may or may not be retrievable, but I imagine this would be a little out of date and too specific for your purposes?)

Best wishes

Matthew
Conservation Officer
RSPB Northern Ireland
Belvoir Park Forest
Belfast
BT8 7QT
Tel.: 028 90 491547
www.rspb.org.uk

2)
From: Ferry, Claire [Claire.Ferry@rspb.org.uk]
Sent: 12 December 2007 16:25
To: Suzanne Lowry
Subject: Winter Bird Data Larne Lough/Islandmagee

Hi Suzanne

The RSPB doesn't hold any wintering data. All winter counts are done through the WEBS scheme run by BTO so you would have to contact them. BTO also hold the Seabird 2000 counts - they were summer counts but do highlight the importance of the nearby old jetty to your 'site location' dot for black guillemots.

Ian Enlander at EHS does many of the Larne Lough WEBS counts I think, so it might be worth having a word with him.

Claire

Five year summary for Inner Larne Lough

Table1: Total Counts - All Species Combined.

Peak monthly total = maximum of the sum of the counts of all species within each month.
Seasonal peaks = sum of the maximum counts of all species within each season.

Year	Peak Monthly Total	Autumn Peak	Winter Peak	Spring Peak
01/02	2202 (MAR)	1886	3243	N/C
02/03	2352 (FEB)	2248	3193	N/C
03/04	3273 (DEC)	1287	3714	N/C
04/05	2243 (DEC)	994	3655	N/C
05/06	3151 (DEC)	1411	3981	N/C
MEAN		1565	3557	N/C

Table2: Five-year average monthly counts of each species.

Figure in parentheses give number of complete and incomplete counts upon which the average is based.
Incomplete counts are excluded from calculation where, if included, they would depress the mean.

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mute Swan			7(5,.)	11(5,.)	14(4,1)	17(4,1)	13(5,.)	4(5,.)	7(3,1)			
Whooper Swan			0(5,.)	8(5,.)	1(4,1)	0(4,1)	0(5,.)	0(5,.)	1(3,1)			
Chinese Goose			0(5,.)	0(5,.)	1(4,1)	0(4,1)	0(5,.)	0(5,.)	0(4,.)			
Pink-footed Goose			0(5,.)	0(5,.)	0(4,1)	0(5,.)	0(5,.)	1(5,.)	0(3,1)			
Greylag Goose (re-established)			0(5,.)	0(5,.)	4(4,1)	19(4,1)	15(5,.)	18(5,.)	6(3,1)			
Snow Goose			0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	1(3,1)			
Light-bellied Brent Goose (East Canadian high Arctic population)			1(5,.)	12(5,.)	69(4,1)	158(4,1)	135(5,.)	158(5,.)	90(3,1)			
Shelduck			6(5,.)	105(5,.)	172(4,1)	384(4,1)	532(5,.)	588(5,.)	423(3,1)			
Wigeon			17(5,.)	134(5,.)	197(4,1)	327(4,1)	238(5,.)	127(5,.)	70(3,1)			
Teal			17(5,.)	97(5,.)	46(4,1)	358(4,1)	218(5,.)	153(5,.)	76(3,1)			
Green-winged Teal			0(5,.)	0(5,.)	0(5,.)	0(4,1)	0(5,.)	0(5,.)	0(3,1)			
Mallard			51(5,.)	37(5,.)	68(4,1)	97(4,1)	51(5,.)	46(5,.)	27(3,1)			
Pintail			0(5,.)	22(5,.)	0(4,1)	0(5,.)	0(5,.)	0(5,.)	0(4,.)			
Eider			9(5,.)	2(5,.)	3(4,1)	0(4,1)	0(5,.)	0(5,.)	4(3,1)			
Goldeneye			0(5,.)	4(5,.)	14(4,1)	18(4,1)	6(5,.)	16(5,.)	10(3,1)			
Red-breasted Merganser			32(5,.)	28(5,.)	33(4,1)	26(4,1)	17(5,.)	14(5,.)	6(3,1)			
Goosander			0(5,.)	0(5,.)	0(4,1)	0(4,1)	0(5,.)	0(5,.)	0(4,.)			
Red-throated Diver			0(5,.)	0(5,.)	0(4,1)	0(4,1)	0(5,.)	0(5,.)	0(3,1)			
Little Grebe			0(5,.)	1(5,.)	3(4,1)	2(4,1)	3(5,.)	3(5,.)	2(3,1)			
Great Crested Grebe			7(5,.)	6(5,.)	12(4,1)	7(4,1)	10(5,.)	2(5,.)	10(3,1)			
Cormorant			10(5,.)	5(5,.)	2(4,1)	6(4,1)	1(5,.)	0(5,.)	0(3,1)			
Shag			4(5,.)	11(5,.)	9(4,1)	11(4,1)	3(5,.)	3(5,.)	0(3,1)			
Little Egret			1(5,.)	0(5,.)	1(4,1)	1(4,1)	0(5,.)	0(5,.)	0(3,1)			
Grey Heron			7(5,.)	8(5,.)	7(4,1)	6(4,1)	4(5,.)	2(5,.)	3(3,1)			
Moorhen			0(5,.)	0(5,.)	1(4,1)	0(4,1)	0(5,.)	0(5,.)	0(3,1)			
Oystercatcher			70(5,.)	96(5,.)	43(4,1)	69(4,1)	63(5,.)	69(5,.)	72(3,1)			
Golden Plover			0(5,.)	10(5,.)	0(4,1)	0(4,1)	7(5,.)	0(5,.)	8(3,1)			
Lapwing			4(5,.)	34(5,.)	170(4,1)	222(4,1)	124(5,.)	167(5,.)	14(3,1)			
Knot			2(5,.)	0(5,.)	17(4,1)	1(4,1)	0(5,.)	0(5,.)	0(3,1)			
Curlew Sandpiper			0(5,.)	0(5,.)	0(4,1)	0(5,.)	0(5,.)	0(5,.)	0(4,.)			
Dunlin			5(5,.)	34(5,.)	84(4,1)	444(4,1)	228(5,.)	224(5,.)	52(3,1)			
Jack Snipe			0(5,.)	1(5,.)	0(4,1)	1(4,1)	0(5,.)	0(5,.)	0(3,1)			
Snipe			1(5,.)	8(5,.)	2(4,1)	20(4,1)	10(5,.)	3(5,.)	10(3,1)			
Black-tailed Godwit			0(5,.)	1(5,.)	0(4,1)	0(4,1)	0(5,.)	0(5,.)	0(3,1)			
Bar-tailed Godwit			2(5,.)	2(5,.)	0(4,1)	0(4,1)	0(5,.)	0(5,.)	0(3,1)			
Whimbrel			0(5,.)	0(5,.)	0(4,1)	1(4,1)	0(5,.)	0(5,.)	0(4,.)			
Curlew			112(5,.)	161(5,.)	165(4,1)	176(4,1)	85(5,.)	115(5,.)	110(3,1)			
Redshank			61(5,.)	167(5,.)	182(4,1)	269(4,1)	98(5,.)	109(5,.)	130(3,1)			
Greenshank			3(5,.)	2(5,.)	4(4,1)	3(4,1)	2(5,.)	1(5,.)	1(3,1)			
Turnstone			0(5,.)	0(5,.)	0(5,.)	0(4,1)	6(5,.)	0(5,.)	0(4,.)			
Black-headed Gull			336(5,.)	118(5,.)	36(4,1)	86(4,1)	70(5,.)	110(5,.)	263(3,1)			
Common Gull			82(5,.)	58(5,.)	15(4,1)	29(4,1)	45(5,.)	39(5,.)	19(3,1)			
Lesser Black-backed Gull			4(5,.)	1(5,.)	0(4,1)	0(4,1)	0(5,.)	0(5,.)	0(3,1)			

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.
These tabulations are based exclusively on data collected as part of the monthly Core Counts.
For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.
Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

The Wetland Bird Survey is a partnership between the British Trust for Ornithology, The Wildfowl and Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee, the latter on behalf of Natural England, Scottish Natural Heritage, the Countryside Council for Wales and the Environment and Heritage Service in Northern Ireland.

Table2: Five-year average monthly counts of each species.

Figure in parentheses give number of complete and incomplete counts upon which the average is based.
Incomplete counts are excluded from calculation where, if included, they would depress the mean.

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Herring Gull			53(5,.)	22(5,.)	8(4,1)	8(4,1)	23(5,.)	10(5,.)	5(3,1)			
Iceland Gull			0(5,.)	0(5,.)	0(5,.)	0(5,.)	0(5,.)	1(5,.)	0(3,1)			
Glaucous Gull			0(5,.)	0(5,.)	0(5,.)	0(4,1)	0(5,.)	0(5,.)	0(3,1)			
Great Black-backed Gull			6(5,.)	2(5,.)	2(4,1)	0(4,1)	3(5,.)	0(5,.)	0(3,1)			
Sandwich Tern			0(5,.)	0(5,.)	0(4,1)	0(5,.)	0(5,.)	0(5,.)	0(4,.)			
Kingfisher			0(5,.)	0(5,.)	0(4,1)	0(4,1)	0(5,.)	0(5,.)	0(4,.)			

Table3: Five-year peak monthly counts of each species.

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Mute Swan			18	25	25	22	26	17	10			
Whooper Swan			0	36	3	0	1	0	2			
Chinese Goose			0	0	2	0	2	0	0			
Pink-footed Goose			0	0	0	0	0	2	0			
Greylag Goose (re-established)			0	0	9	41	28	57	9			
Snow Goose			0	0	0	0	0	2	2			
Light-bellied Brent Goose (East Canadian high Arctic population)			5	43	140	235	248	215	202			
Shelduck			11	280	430	646	662	864	776			
Wigeon			61	182	323	549	407	236	89			
Teal			47	280	87	569	406	296	111			
Green-winged Teal			0	0	0	0	0	0	1			
Mallard			74	76	96	173	95	58	49			
Pintail			0	110	0	0	0	0	0			
Eider			15	11	12	0	0	0	10			
Goldeneye			0	11	30	32	14	36	19			
Red-breasted Merganser			60	37	43	30	21	24	15			
Goosander			0	0	1	1	1	0	0			
Red-throated Diver			0	1	0	0	0	0	0			
Little Grebe			1	3	7	3	5	6	3			
Great Crested Grebe			19	28	26	12	23	7	14			
Cormorant			15	17	5	20	2	1	1			
Shag			13	31	20	42	17	17	0			
Little Egret			4	1	2	2	1	1	0			
Grey Heron			10	18	10	8	13	4	5			
Moorhen			0	0	2	0	0	0	0			
Oystercatcher			132	183	89	86	117	127	135			
Golden Plover			0	37	1	0	36	0	25			
Lapwing			12	123	225	472	214	389	34			
Knot			5	0	69	2	1	0	0			
Curlew Sandpiper			2	1	0	0	0	0	0			
Dunlin			22	100	285	906	321	343	112			
Jack Snipe			0	3	0	2	1	0	0			
Snipe			4	18	6	48	48	14	18			
Black-tailed Godwit			1	1	0	0	0	0	0			
Bar-tailed Godwit			8	8	1	0	0	0	0			
Whimbrel			1	0	0	1	0	0	0			
Curlew			148	206	254	227	108	215	171			
Redshank			94	267	275	548	134	151	131			
Greenshank			6	4	9	5	3	2	2			
Turnstone			0	0	0	0	30	0	0			
Black-headed Gull			525	236	54	170	136	207	436			
Common Gull			155	129	37	100	143	127	28			
Lesser Black-backed Gull			19	2	0	0	0	0	0			
Herring Gull			130	38	14	17	42	30	10			

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.
These tabulations are based exclusively on data collected as part of the monthly Core Counts.
For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.
Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

The Wetland Bird Survey is a partnership between the British Trust for Ornithology, The Wildfowl and Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee, the latter on behalf of Natural England, Scottish Natural Heritage, the Countryside Council for Wales and the Environment and Heritage Service in Northern Ireland.

Table3: Five-year peak monthly counts of each species.

Species	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Iceland Gull			0	0	0	0	0	3	0			
Glaucous Gull			0	0	0	0	0	1	0			
Great Black-backed Gull			14	5	2	0	4	0	0			
Sandwich Tern			2	2	0	0	0	0	0			
Kingfisher			0	1	1	0	0	0	0			

Table4a: Five-year autumn peak counts, and month in which this was recorded, of each species.

Where a count is enclosed by parentheses this indicates that it was considered incomplete i.e. those parts of the site not visited typically holds at least 25% of the species in question. Incomplete counts are excluded from calculation where, if included, they would depress the mean. When all counts are considered to be incomplete the maximum replaces the mean.

Species	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	Mean Peak
Mute Swan	10 (OCT)	4 (SEP)	25 (OCT)	18 (SEP)	7 (OCT)	13
Whooper Swan	0	0	36 (OCT)	1 (OCT)	1 (OCT)	8
Light-bellied Brent Goose (East Canadian high Arctic population)	0	43 (OCT)	5 (SEP)	12 (OCT)	6 (OCT)	13
Shelduck	95 (OCT)	280 (OCT)	80 (OCT)	47 (OCT)	25 (OCT)	105
Wigeon	182 (OCT)	154 (OCT)	143 (OCT)	108 (OCT)	83 (OCT)	134
Teal	105 (OCT)	280 (OCT)	18 (SEP)	36 (OCT)	65 (OCT)	101
Mallard	38 (SEP)	74 (SEP)	76 (OCT)	43 (SEP)	47 (SEP)	56
Pintail	110 (OCT)	0	0	0	0	22
Eider	1 (OCT)	15 (SEP)	15 (SEP)	15 (SEP)	1 (SEP)	9
Goldeneye	7 (OCT)	3 (OCT)	11 (OCT)	0	0	4
Red-breasted Merganser	60 (SEP)	26 (OCT)	37 (OCT)	34 (SEP)	37 (SEP)	39
Red-throated Diver	0	1 (OCT)	0	0	0	0
Little Grebe	0	2 (OCT)	3 (OCT)	0	0	1
Great Crested Grebe	28 (OCT)	1 (OCT)	0	9 (SEP)	19 (SEP)	11
Cormorant	15 (SEP)	17 (OCT)	3 (SEP)	8 (SEP)	15 (SEP)	12
Shag	0	31 (OCT)	22 (OCT)	1 (SEP)	0	11
Little Egret	0	0	0	2 (SEP)	4 (SEP)	1
Grey Heron	18 (OCT)	3 (OCT)	9 (SEP)	9 (SEP)	4 (SEP)	9
Oystercatcher	136 (OCT)	183 (OCT)	87 (OCT)	29 (SEP)	53 (SEP)	98
Golden Plover	37 (OCT)	0	13 (OCT)	1 (OCT)	0	10
Lapwing	0	123 (OCT)	26 (OCT)	22 (OCT)	12 (SEP)	37
Knot	0	5 (SEP)	0	3 (SEP)	0	2
Curlew Sandpiper	1 (OCT)	0	2 (SEP)	0	0	1
Dunlin	12 (OCT)	40 (OCT)	22 (SEP)	100 (OCT)	19 (OCT)	39
Jack Snipe	3 (OCT)	0	0	0	0	1
Snipe	18 (OCT)	9 (OCT)	11 (OCT)	0	1 (SEP)	8
Black-tailed Godwit	0	1 (OCT)	1 (OCT)	1 (SEP)	0	1
Bar-tailed Godwit	1 (SEP)	8 (SEP)	0	0	0	2
Whimbrel	0	0	0	1 (SEP)	0	0
Curlew	206 (OCT)	203 (OCT)	169 (OCT)	95 (SEP)	149 (OCT)	164
Redshank	267 (OCT)	127 (OCT)	109 (OCT)	147 (OCT)	187 (OCT)	167
Greenshank	5 (SEP)	3 (OCT)	6 (SEP)	3 (SEP)	0	3
Black-headed Gull	356 (SEP)	385 (SEP)	262 (SEP)	151 (SEP)	525 (SEP)	336
Common Gull	126 (SEP)	155 (SEP)	86 (SEP)	35 (OCT)	19 (SEP)	84
Lesser Black-backed Gull	19 (SEP)	1 (OCT)	1 (SEP)	2 (SEP)	0	5
Herring Gull	18 (SEP)	65 (SEP)	6 (OCT)	47 (SEP)	130 (SEP)	53
Great Black-backed Gull	10 (SEP)	5 (OCT)	1 (SEP)	14 (SEP)	2 (SEP)	6
Sandwich Tern	2 (OCT)	0	2 (SEP)	0	0	1
Kingfisher	0	1 (OCT)	0	0	0	0

Table4b: Five-year winter peak counts, and month in which this was recorded, of each species.

Where a count is enclosed by parentheses this indicates that it was considered incomplete i.e. those parts of the site not visited typically holds at least 25% of the species in question. Incomplete counts are excluded from calculation where, if included, they would depress the mean. When all counts are considered to be incomplete the maximum replaces the mean.

Species	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	Mean Peak
Mute Swan	26 (JAN)	25 (NOV)	17 (DEC)	(15) (DEC)	22 (DEC)	23
Whooper Swan	(0)	1 (NOV)	1 (NOV)	2 (MAR)	3 (NOV)	2
Chinese Goose	(0)	2 (NOV)	0	0	0	1
Pink-footed Goose	1 (FEB)	2 (FEB)	0	0	0	1
Greylag Goose (re-established)	57 (FEB)	16 (JAN)	25 (JAN)	8 (NOV)	(9) (MAR)	27
Snow Goose	2 (FEB)	0	0	0	0	0
Light-bellied Brent Goose (East Canadian high Arctic population)	235 (DEC)	125 (FEB)	235 (DEC)	248 (JAN)	215 (FEB)	212
Shelduck	776 (MAR)	592 (FEB)	553 (JAN)	756 (FEB)	864 (FEB)	708
Wigeon	147 (DEC)	251 (DEC)	361 (DEC)	267 (JAN)	549 (DEC)	315
Teal	256 (DEC)	406 (JAN)	569 (DEC)	206 (FEB)	354 (DEC)	358
Green-winged Teal	0	0	0	1 (MAR)	0	0
Mallard	83 (DEC)	63 (DEC)	173 (DEC)	65 (NOV)	96 (NOV)	96
Eider	(0)	0	2 (MAR)	10 (MAR)	12 (NOV)	6
Goldeneye	28 (DEC)	36 (FEB)	32 (DEC)	7 (FEB)	10 (FEB)	23
Red-breasted Merganser	30 (DEC)	37 (NOV)	32 (NOV)	43 (NOV)	24 (FEB)	33
Goosander	(0)	0	0	1 (NOV)	1 (JAN)	1
Little Grebe	6 (FEB)	5 (FEB)	7 (NOV)	5 (JAN)	2 (DEC)	5
Great Crested Grebe	23 (JAN)	8 (JAN)	14 (MAR)	4 (NOV)	26 (NOV)	15
Cormorant	(4) (NOV)	20 (DEC)	1 (NOV)	2 (NOV)	4 (DEC)	7
Shag	(0)	42 (DEC)	17 (FEB)	3 (NOV)	0	16
Little Egret	(0)	0	0	0	2 (NOV)	1
Grey Heron	7 (DEC)	10 (NOV)	4 (DEC)	13 (JAN)	8 (DEC)	8
Moorhen	(0)	0	0	2 (NOV)	0	1
Oystercatcher	135 (MAR)	127 (FEB)	86 (DEC)	(67) (DEC)	117 (JAN)	116
Golden Plover	36 (JAN)	0	0	25 (MAR)	0	12
Lapwing	178 (JAN)	347 (FEB)	472 (DEC)	168 (NOV)	389 (FEB)	311
Knot	(0)	0	69 (NOV)	0	0	17
Dunlin	287 (DEC)	370 (DEC)	326 (DEC)	(906) (DEC)	329 (DEC)	444
Jack Snipe	2 (DEC)	0	1 (DEC)	0	0	1
Snipe	48 (JAN)	2 (NOV)	48 (DEC)	1 (JAN)	0	20
Bar-tailed Godwit	(1) (NOV)	0	0	0	0	0
Whimbrel	1 (DEC)	0	1 (DEC)	0	0	0
Curlew	171 (MAR)	254 (NOV)	171 (DEC)	215 (FEB)	227 (DEC)	208
Redshank	141 (DEC)	275 (NOV)	232 (DEC)	(261) (DEC)	548 (DEC)	299
Greenshank	(2) (NOV)	9 (NOV)	5 (DEC)	2 (NOV)	2 (NOV)	5
Turnstone	30 (JAN)	0	0	0	0	6
Black-headed Gull	436 (MAR)	115 (FEB)	98 (FEB)	276 (MAR)	120 (FEB)	209
Common Gull	54 (JAN)	19 (FEB)	143 (JAN)	26 (JAN)	16 (FEB)	52
Herring Gull	35 (JAN)	30 (JAN)	17 (DEC)	42 (JAN)	30 (FEB)	31
Iceland Gull	0	0	0	3 (FEB)	0	1

Table4b: Five-year winter peak counts, and month in which this was recorded, of each species.

Where a count is enclosed by parentheses this indicates that it was considered incomplete i.e. those parts of the site not visited typically holds at least 25% of the species in question. Incomplete counts are excluded from calculation where, if included, they would depress the mean. When all counts are considered to be incomplete the maximum replaces the mean.

Species	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006	Mean Peak
Glaucous Gull	0	0	0	1 (FEB)	0	0
Great Black-backed Gull	4 (JAN)	4 (JAN)	2 (NOV)	4 (JAN)	2 (NOV)	3
Kingfisher	(1) (NOV)	0	0	0	0	0

Table5: National and International importance of the site for each species.

Figures given indicate the percentage of the relevant qualifying level represented by the five year mean peak count for the species in question e.g. 50% indicates that the five year mean peak count is half that required for the site to qualify as nationally or internationally important as appropriate for the species in question. Where a count is enclosed by parentheses this indicates that it was considered incomplete i.e. those parts of the site not visited typically holds at least 25% of the species in question. Asterisks indicate that the percentage presented has been derived using a value of 1% of the national population that is less than 50 (50 is normally used as a minimum threshold for designation of sites).

Species	Autumn cf National Threshold	Winter cf National Threshold	Spring cf National Threshold	Autumn cf International Threshold	Winter cf International Threshold	Spring cf International Threshold	Autumn 5yr mean of peaks	Winter 5yr mean of peaks	Spring 5yr mean of peaks
Mute Swan	13%	23%	N/A	13%	23%	N/A	13	23	
Whooper Swan	8%	2%	N/A	4%	1%	N/A	8	2	
Chinese Goose	N/A	N/A	N/A	N/A	N/A	N/A	0	1	
Pink-footed Goose	N/A	N/A	N/A	0%	0%	N/A	0	1	
Greylag Goose (re-established)	N/A	N/A	N/A	N/A	N/A	N/A	0	27	
Light-bellied Brent Goose (East Canadian high Arctic population)	7%	106%	N/A	5%	82%	N/A	13	212	
Shelduck	150%	1011%	N/A	4%	24%	N/A	105	708	
Wigeon	11%	25%	N/A	1%	2%	N/A	134	315	
Teal	16%	55%	N/A	2%	7%	N/A	101	358	
Mallard	11%	19%	N/A	0%	0%	N/A	56	96	
Pintail	37%	0%	N/A	4%	0%	N/A	22	0	
Eider	*45%	*30%	N/A	0%	0%	N/A	9	6	
Goldeneye	4%	21%	N/A	0%	0%	N/A	4	23	
Red-breasted Merganser	*195%	*165%	N/A	2%	2%	N/A	39	33	
Goosander	N/A	N/A	N/A	0%	0%	N/A	0	1	
Little Grebe	N/A	N/A	N/A	0%	0%	N/A	1	5	
Great Crested Grebe	*37%	*50%	N/A	0%	0%	N/A	11	15	
Cormorant	N/A	N/A	N/A	1%	1%	N/A	12	7	
Shag	N/A	N/A	N/A	1%	1%	N/A	11	16	
Little Egret	N/A	N/A	N/A	0%	0%	N/A	1	1	
Grey Heron	N/A	N/A	N/A	0%	0%	N/A	9	8	
Moorhen	N/A	N/A	N/A	0%	0%	N/A	0	1	
Oystercatcher	20%	23%	N/A	1%	1%	N/A	98	116	
Golden Plover	1%	1%	N/A	0%	0%	N/A	10	12	
Lapwing	1%	12%	N/A	0%	2%	N/A	37	311	
Knot	1%	5%	N/A	0%	0%	N/A	2	17	
Curlew Sandpiper	N/A	N/A	N/A	0%	0%	N/A	1	0	
Dunlin	3%	36%	N/A	0%	3%	N/A	39	444	
Jack Snipe	N/A	0%	N/A	N/A	N/A	N/A	1	1	
Snipe	N/A	N/A	N/A	0%	0%	N/A	8	20	
Black-tailed Godwit	1%	0%	N/A	0%	0%	N/A	1	0	
Bar-tailed Godwit	1%	0%	N/A	0%	0%	N/A	2	0	
Curlew	19%	24%	N/A	2%	2%	N/A	164	208	
Redshank	68%	122%	N/A	6%	11%	N/A	167	299	
Greenshank	N/A	*56%	N/A	0%	0%	N/A	3	5	
Turnstone	0%	3%	N/A	0%	0%	N/A	0	6	

Data provided by the British Trust for Ornithology on behalf of The Wetland Bird Survey.
These tabulations are based exclusively on data collected as part of the monthly Core Counts.
For some species (e.g. wintering geese) data collected by other surveys may be more appropriate for the purpose of site assessment.
Missing or unexpectedly low counts for gulls and terns should be treated with caution - counting these groups is optional and determination of count effort not always possible.

The Wetland Bird Survey is a partnership between the British Trust for Ornithology, The Wildfowl and Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee, the latter on behalf of Natural England, Scottish Natural Heritage, the Countryside Council for Wales and the Environment and Heritage Service in Northern Ireland.

Table5: National and International importance of the site for each species.

Figures given indicate the percentage of the relevant qualifying level represented by the five year mean peak count for the species in question e.g. 50% indicates that the five year mean peak count is half that required for the site to qualify as nationally or internationally important as appropriate for the species in question. Where a count is enclosed by parentheses this indicates that it was considered incomplete i.e. those parts of the site not visited typically holds at least 25% of the species in question. Asterisks indicate that the percentage presented has been derived using a value of 1% of the national population that is less than 50 (50 is normally used as a minimum threshold for designation of sites).

Species	Autumn cf National Threshold	Winter cf National Threshold	Spring cf National Threshold	Autumn cf International Threshold	Winter cf International Threshold	Spring cf International Threshold	Autumn 5yr mean of peaks	Winter 5yr mean of peaks	Spring 5yr mean of peaks
Black-headed Gull	N/A	N/A	N/A	2%	1%	N/A	336	209	
Common Gull	N/A	N/A	N/A	0%	0%	N/A	84	52	
Lesser Black-backed Gull	N/A	N/A	N/A	0%	0%	N/A	5	0	
Herring Gull	N/A	N/A	N/A	1%	1%	N/A	53	31	
Iceland Gull	N/A	N/A	N/A	N/A	N/A	N/A	0	1	
Great Black-backed Gull	N/A	N/A	N/A	0%	0%	N/A	6	3	
Sandwich Tern	N/A	N/A	N/A	0%	0%	N/A	1	0	

CONSERVATION OBJECTIVES

LARNE LOUGH SPA

1. POLICY STATEMENT

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any appropriate assessment that may be needed. It should be noted that appropriate assessments are a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

2.1 GENERAL INFORMATION

COUNTY: Antrim

G.R. J450 987 AREA: 398 ha.

2.2 SUMMARY SITE DESCRIPTION

The sea lough extends from Larne town, southwards to Ballycarry. The lough is nearly bisected by Magheramourne dump, created from quarry spoil. It includes the extensive inter-tidal mudflats, together with more limited sand, gravel and boulder beaches. The tidal lagoon at Glynn is also included. Adjoining habitat within the site includes saltmarsh and transitional habitats together with limited wet grassland. Swan Island (natural) and Blue Circle Island (artificial) are important tern nesting sites.

2.3 BOUNDARY RATIONALE

The SPA is coincident with the ASSI and Ramsar boundaries. The site includes all natural and semi-natural habitat both inter-tidal and adjoining. The southern inter-tidal section of the lough is utilised by geese while the northern part is utilised by terns. Swan Island SPA now forms part of this site. Roost sites occurring outside the extent of natural or semi-natural habitat have not been included but their importance must not be underestimated.

3.1 SPA SELECTION FEATURES

Feature Type	Feature	Population	Population at time of designation (ASSI)	Population at time of designation (SPA)	SPA Review population	CSM baseline
Species	Sandwich Tern breeding population	0, 165 (1999-2000)	123	New feature	165	64 (1993-1997)
Species	Roseate Tern breeding population	4, 6 (1999-2000)	6	6	6	0 (1993-1997)
Species	Common Tern breeding population	439, 180 (1999-2000)	174	199	180	177 (1993-1997

Species	Light-bellied Brent Goose wintering population	218, 227 (1995-2000)	202	227	227	177 (1990/91-1996/97)
Habitat[1]	Habitat extent					
Habitat[1]	Roost site locations					

Table 1. List of SPA selection features.

[1] Habitat is not a selection feature but is a factor and is more easily treated as if it were a feature. Habitat extent is also used for breeding birds reported as an area.

3.2. ADDITIONAL ASSI SELECTION FEATURES

Feature Type (i.e. habitat, species or earth science)	**Feature**	**Size/ extent/ pop'**	**Population at time of designation (ASSI)**	**CSM baseline**
Habitat	Coastal saltmarsh			
Species	Goldeneye wintering population		182	126 (1990/91-1996/97)
Species	Great Crested Grebe wintering population		121	88 (1990/91-1996/97)
Species	Red-breasted Merganser wintering population		180	167 (1990/91-1996/97)
Species	Shelduck wintering population		246	247 (1990/91-1996/97)
Species	Redshank wintering population		415	304 (1990/91-1996/97)

Table 2. List of ASSI features, additional to those that form all or part of SPA selection features. These will be referred to in ANNEX II.

4. MANAGEMENT CONSIDERATIONS

Owner/Occupier's – (to be used to identify any key management considerations arising from ownership e.g. owners/organisations having an obvious bearing on conservation matters or from management agreements).

Approximately 75 individuals/organisations own land within the SPA. Major landowners within the SPA, relevant to the site management, include Crown Estate Commissioners, EHS, Blue Circle Cement and Private Individuals. The RSPB lease Tern Island from Blue Circle Cement, and Swan Island from EHS. The lease expires in 2015. Kilcoan Shellfish lease areas of the seabed from the Crown Estate Commissioners for shellfish production. There may be conflicts of interest between the requirements of individual/organisations, both within and adjacent to the SPA, and the site management needs.

Adjacent commercial operations that may impact upon the SPA include Ballylumford Power Station, Blue Circle Cement, Larne Harbour and P&O European Ferries. Premier Power Ltd operate Ballylumford Power Station which generates electricity for Northern Ireland Electricity. The power station located close to Larne Lough SPA on Isalandmagee, is a Part A Process under the Industrial Pollution Control Order. Additionally sewage

discharge points from Ballystrudder and Ballycarry Treatment Works may impact upon the site.

A number of management agreements are already in place with some landowners.

MAIN IMPACTS ON THE SITE OR SITE FEATURES

Notifiable Operations - Carrying out any of the Notifiable Operations listed in the schedule could affect the site. The list below is not exhaustive, but deals with the most likely factors that are either affecting Lough Foyle SPA, or could affect it in the future. Although, features 1, 2, 3, 4 etc, are the qualifying SPA features, factors affecting ASSI features are also considered.

Generic site/feature issues

No	Issue	Threat/comments	Local considerations	Action
1	Adjoining habitat	Particularly important for swans and geese as well as providing high tide roost locations. Significant changes in land management and disturbance are key considerations. Such areas lie without the site making effective management of developments other than those for which planning permission is required, difficult.	Limited consideration here as the geese do not utilise adjoining habitat.	Assess planning applications. Identify key areas and promote site management schemes. Review use of Wildfowl Refuges. Consider the collective impact.
2	Aquaculture	Disturbance is a minor consideration unless carried out deliberately to minimise losses to shell-feeding waterfowl. Alteration of natural littoral and sub-littoral communities through seeding, tray/trestle cultivation, dredging/control of pest species. Naturalisation of introduced species – both the shellfish themselves and associated species e.g. algae and disease vectors.	Shellfish developments concentrated in the Magheramourne area; mainly tray cultivation of oyster with some rope cultivation of mussels. Areas utilised are of minimal importance birds.	Liaise with DARD Fisheries Division. Assess all license applications individually. Consider the collective impact.
3	Bait digging – commercial or 'recreational' and shellfish gathering.	Disturbance and impact on sediment and invertebrate fauna – may be positive through making deeper prey items available on surface. Shellfish gathering represents a net loss to the system in terms of biomass. Generally unregulated.	Of particular concern in the area of Swan Island which is accessible at low Spring tides, potentially causing disturbance to nesting birds. Otherwise not thought to be a significant issue.	Monitor scale of activity. Consider the collective impact.
6	Boating	Disturbance and potential for	Very limited shipping	Formal consultation likely

	activity – commercial	impact from high-speed liners.	to the Magheramourne Blue Circle quay, currently being run down. Little concern.	relating to new schemes. Consider the collective impact.
7	Boating activity – recreational	Disturbance and potential for impact especially from jet skies. Generally relevant to particularly sensitive areas within site.	Sailing boats are concentrated at the northern end of the lough. Main concern is from disturbance to nesting birds.	Liaise with appropriate authority with codes of good practice, zoning and use of by-laws as necessary. Consider the collective impact. Ensure appropriate signage on both islands.
9	Cull of fledglings/ young	Licensed selective culling of species impacting on 'more desirable' species. Licensed by EHS.	Control of large gull nests has been undertaken at the tern colonies. To be continued as necessary.	EHS to review all licenses. Consider the collective impact.
13	Enhanced bird competition	Activities onsite or offsite that influences or results in a shift in balance of species utilising a site.	Off-site developments may have a bearing on numbers of potentially competing species/individuals using the site. Examples include landfill operations attracting large gulls which then use the designated site.	Liaise with Planning Service. Review wider countryside changes.
15	Habitat extent – inter-tidal	Loss of habitats through development, changes in coastal processes. Loss of inter-tidal habitat is a critical issue as this is the feeding zone for the majority (numbers and species) of birds.	Not a significant issue.	Assess planning applications. Monitor using aerial photography.
16	Habitat extent – open water	Loss likely to be limited but expansion of commercial port facilities can impact on key localities.	Not a significant issue.	Assess planning applications. Consider the collective impact.
17	Habitat quality – inter-tidal	Alteration of habitat quality through diminution of water quality, invasive species or changes in coastal processes.	Lough is enriched, notably through sewage discharge from Ballystrudder and Ballycarry. This has the potential to alter inter-tidal habitat.	Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection. Consider the collective impact.
18	Habitat quality – open water	Alteration of habitat quality through diminution of water quality or invasive species.	Lough is enriched, notably through sewage discharge from Ballystrudder and Ballycarry. This has the potential to alter inter-tidal habitat.	Assess planning applications. Deal with invasive alien species by preventing their spread or reducing their impact. Liaise with Environmental Protection. Consider the collective impact.
19	Habitat extent and quality-	Alteration of habitat area or quality through inappropriate	Blue Circle Island represents a successful	Assess needs of breeding species. Liaise with owner

	breeding	use or absence of site management.	increase in available nesting habitat. Ongoing management of the islands will be required with regard to vegetation succession.	or appropriate authority to adjust or introduce site management if necessary. RSPB are managing body for the islands..
22	Power cables	Specifically a problem in relation to swans and geese. Threat is through impact. Need to consider flight lines, as well as feeding and loafing areas, which ideally should be avoided.	Line markers have been put in place at Ballycarry following a number of Brent fatalities.	Liaise with NIE. Minimum need is for line marking based on best current practice. Consider the collective impact.
23	Predation.	Mainly of concern on bird breeding sites.	Issue of large gulls impacting on breeding terns.	Must be dealt with as part of wider countryside management considerations. Carry out appropriate site management.
24	Recreational activities.	Disturbance is the main consideration although vehicle access may also lead to beach compaction and impacts on beachhead habitats.	Not a significant issue.	Liaise with local authorities and other managing parties.
25	Research activities.	Census and ringing activities especially have the potential to impact on bird populations, particularly at breeding sites.	Routine winter WEBS counts undertaken. Annual visits to the islands undertaken to assess nest numbers and success.	Census and ringing activities to be undertaken by competent individuals, appropriately trained. In case of ringers, appropriate license must be held.
28	System dynamics	Cuts across many other issues. Dynamic systems, especially coastal, can be affected by many factors especially engineered structures and significant changes in dominant wind direction or storm frequency. Many systems may indeed still be undergoing responses to historical developments e.g. partial reclamation, seawall construction. Changes may include alteration in sediment grade, shifts in patterns of erosion and deposition etc. Consequences for habitat and species utilisation of the site can be profound.	The site is a relatively low energy one, with limited coastal engineering. The main impact is from the historical dumping associated with the Magheramourne. This has reduced further tidal and wind energies in the southern part of the lough. Tray cultivation is limited in extent.	Human induced change should be minimised. Assess planning applications and liaise with other relevant authorities. Ad hoc dumping and removal of natural materials should be managed. Major natural shifts in system behaviour may be identified through analysis of aerial photographs and site monitoring. Major and consistent changes to patterns of habitat distribution and bird utilisation of the site should be noted.
31	Wildfowling	Has direct effect through bag sizes/bag species and wider disturbance issue. Issue of regulated (through recognised shooting clubs) and ad hoc shooters. Lead shot on grazing lands.	Local wildfowlers have a strong interest in conservation and undertake, in liaison with EHS, habitat creation and management. Main	Liaise with relevant shooting bodies (BASC especially) to define areas for wildfowling, the development of Wildfowlers Codes of Good Practice and encourage bag returns.

			concerns relates to appropriateness of wildfowlers using Swan Island as a base for shooting.	Support pressure to stop use of lead shot. Review use of Wildfowl Refuges. Assess if wildfowlers should have access right to Swan Island. Consider the collective impact.

Table 3. List of site/feature management issues

5. FEATURE OBJECTIVES

The Conservation Objectives for this site are:

To maintain each feature in favourable condition.

For each feature there are a number of component objectives which are outlined in the tables below. Component objectives for Additional ASSI Selection Features are not yet complete. For each feature there are a series of attributes and measures which form the basis of *Condition Assessment*. The results of this will determine whether a feature is in favourable condition, or not. The feature attributes and measures are found in the attached annexes. Those for Additional ASSI Selection Features (Annex II) are not yet completed.

5.1 SPA SELECTION FEATURE OBJECTIVES

Feature	Component Objective
Sandwich Tern breeding population	No significant decrease in breeding population against national trends, caused by on-site factors
Sandwich Tern breeding population	Fledging success
Roseate Tern breeding population	No significant decrease in breeding population against national trends, caused by on-site factors
Roseate Tern breeding population	Fledging success
Common Tern breeding population	No significant decrease in breeding population against national trends, caused by on-site factors
Common Tern breeding population	Fledging success
Light-bellied Brent Goose wintering population	No significant decrease in population against national trends, caused by on-site factors
Habitat extent	To maintain or enhance the area of natural and semi-natural habitats potentially usable by Feature bird species (325 ha intertidal area), (breeding areas 1 ha) subject to natural processes
Habitat extent	Maintain the extent of main habitat components subject to natural processes
Roost sites	Maintain or enhance sites utilised as roosts

Table 4. SPA Component objectives

5.2 ADDITIONAL ASSI SELECTION FEATURE OBJECTIVES

Feature	Component Objective
Coastal saltmarsh	To maintain or extend, as appropriate, the area of saltmarsh, subject to natural processes
	To maintain or enhance, as appropriate, the composition of the saltmarsh communities
	To maintain transitions between saltmarsh communities and to other adjoining habitats
	To permit the continued operation of formative and controlling natural processes acting on the saltmarsh communities
Goldeneye wintering population	No significant decrease in population against national trends, caused by on-site factors
Great Crested Grebe wintering population	No significant decrease in population against national trends, caused by on-site factors
Red-breasted Merganser wintering population	No significant decrease in population against national trends, caused by on-site factors
Shelduck wintering population	No significant decrease in population against national trends, caused by on-site factors
Redshank wintering population	No significant decrease in population against national trends, caused by on-site factors

Table 5. ASSI Component objectives

Tern nesting localities current and historical (TO BE FINALISED)

Swan Island
Blue Circle Island

Table 5. Tern nesting locations within the SPA

6. MONITORING

Monitoring of our Special Protection Areas takes place at a number of levels, using a variety of methods. Methods for both Site Integrity Monitoring and Condition Assessment can be found in the Monitoring Handbook (To be written).

Maintain the integrity of the site. Undertake Site Integrity Monitoring (SIM) at least annually to ensure compliance with the SPA/ASSI schedule. The most likely processes of change (e.g. dumping, infilling, gross pollution) will either be picked up by Site Integrity Monitoring, or will be comparatively slow (e.g. change in habitat such as growth of mussel beds). More detailed monitoring of site features should therefore be carried out by Site Condition Assessment on a less frequent basis (every 6 years initially to pick up long-term or more subtle changes). A baseline survey will be necessary to establish the full extent of the communities present together with the current condition of the features, against which all further condition assessments will be compared.

In addition, detailed quality monitoring or verification monitoring may be carried out from time to time to check whether condition assessment is adequate to detect long-term changes that could affect the site. This type of quality monitoring may involve assessment of aerial photographs to determine site morphological changes. Methodology for this is being developed.

6.1 MONITORING SUMMARY

1. Monitor the integrity of the site (Site Integrity Monitoring or SIM) – Complete boundary survey to ensure integrity of site and that any fencing is still intact. Ensure that no sand extraction or dumping has been carried out within the SAC boundary. This SIM should be carried out once a year.

2. Monitor the condition of the site (Condition Assessment) - Monitor the key attributes for each selection feature (dune, saltmarsh, species). This will detect if the features are in favourable condition or not. See Annexes I and II for SAC and Additional ASSI Features respectively.

7. ADDITIONAL MONITORING ACTIONS UNDERTAKEN FOR SITES IN UNFAVOURABLE CONDITION

Monitoring actions set out in section 6 and Annex 1 will use, amongst other attributes, bird population data to determine site condition. In the event of a significant population decline being detected, a series of subsequent actions will be initiated. The following list is not exhaustive, actions will be site dependant, but the order of these points IS hierarchical i.e. consider point 1, then 2, etc.

1. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, world. Refer to BTO ALERT limits etc. Liaise with other competent bodies to meaningfully assess wider pattern. No site action if site decline mirrors regional pattern the cause of which is not related to the site. Action may be required at regional or larger scale. If the cause of the regional population decline (e.g. eutrophication) is found at the site then action may be necessary, but this may need to form part of a network of strategic species action. Further research may be required.
2. Assess the site population in a wider geographical context – Northern Ireland, Ireland, UK, Europe, world. Determine if site losses are balanced by gains elsewhere e.g. breeding terns. Review site condition to determine if losses are due to site deterioration. Determine if possible whether population has relocated within SPA series (national, biogeographical, European). Note that the reasons for such locational changes may not be readily identifiable. Further research may be required.
3. For passage/wintering species assess breeding information. No site action if site decline is due to breeding ground failure, unless breeding ground failure is related to poor adult condition resulting from factors affecting wintering / passage birds.
4. Determine whether a major incident has affected the site e.g. toxic impact on prey items, predation event or geographical shift in available prey. Ability to respond to impacts may be limited.
5. Assess condition of principal site habitats e.g. vegetational composition and structure, change in habitat balance e.g. mudflats reduced by encroaching mussel beds.
6. Assess prey availability. Issues to consider are both within site e.g. water quality, broad site management, and without site e.g. climatically driven factors.

7. Assess whether there have been any changes in any other site features or management practices (see Table 3) that may have affected populations of site selection features.
8. Long-term site value must be considered even when it is found to be in unfavourable condition for a number of reporting cycles. This is particularly important for breeding seabird and wader sites where ongoing appropriate management may ultimately encourage re-establishment of a favourable population.

8. SELECTION FEATURE POPULATION TRENDS

Site trends are reported using running 5 year means of annual maximum count (WeBS data). Long term trends in index values have been used to assess changes in overall wintering populations for Northern Ireland and UK (WeBS data). Caution is always necessary in the interpretation and application of waterbird counts given the limitations of these data. The reduced number of both sites and birds in Northern Ireland, result in a greater degree of fluctuation. Trends for Ireland are based on five years of data 1994-1999 (I-WeBS data). Consequently short-term fluctuations apparent in the data series may reflect changes in between year productivity, or other short term phenomena, rather than being indicative of a real change in a population.

SPECIES	SITE TREND	NI TREND	ROI TREND	UK TREND	COMMENTS
Sandwich Tern	-	-	-	-	Not known, to be compiled.
Roseate Tern	-	-	-	-	Not known, to be compiled.
Common Tern	-	-	-	-	Not known, to be compiled.
Light-bellied Brent Goose	Stable	Fluctuating	Slight Fluctuation	Not Applicable	

ANNEX I

Feature (SPA) – Breeding seabirds

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

Attribute	Measure	Targets	Comments
*Sandwich Tern breeding population	Apparently occupied nests	No significant decrease in Sandwich Tern breeding population against national trends, caused by on-site factors	Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Sandwich Tern fledging success	Annual survey (as per Gilbert *et al.* 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather.	>1 fledgling per pair successfully raised per year over five year period	Appropriate level of fledgling survival to be determined
*Roseate Tern breeding population	Apparently occupied nests	No significant decrease in Roseate Tern breeding population against national trends, caused by on-site factors	Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
# Roseate Tern fledging success	Annual survey (as per Gilbert *et al.* 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather.	>1 fledgling per pair successfully raised per year over five year period	Appropriate level of fledgling survival to be determined
* Common Tern breeding population	Apparently occupied nests	No significant decrease in Common Tern breeding population against national trends, caused by on-site factors	Requirement that annual data is collected , then apply 5 year mean criteria. Ideally the population will be maintained above 1% of the national population. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.

# Common tern fledging success	Annual survey (as per Gilbert *et al.* 1998). Determine number of fledglings raised and add to total number of fledglings raised over previous four years and divide by five to obtain average. This should remove variation from season to season, e.g. in response to bad weather.	>1 fledgling per pair successfully raised per year over five year period	Appropriate level of fledgling survival to be determined

Non-avian factors

Attribute	Measure	Targets	Comments
* Habitat extent	Area of natural and semi-natural habitat	Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes.	Monitor once every reporting cycle by aerial photography.
# Extent of different habitats	Extent of different habitats	Maintain the extent of main habitat components subject to natural processes	Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures or breeding sites, where this would lead to different usage by notified species.

Feature (SPA) – Wintering waterfowl

Attribute	Measure	Targets	Comments
* Light-bellied Brent Goose wintering population	Bird numbers	No significant decrease in population against national trends, caused by on-site factors	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.

Non-avian factors

Attribute	Measure	Targets	Comments
* Habitat extent	Area of natural and semi-natural habitat	Maintain the area of natural and semi-natural habitats used by notified species, within the SPA, subject to natural processes.	Monitor once every reporting cycle by aerial photography.
# Extent of different habitats	Extent of different habitats	Maintain the extent of main habitat components subject to natural processes	Evaluate habitat quality should bird populations decline due to on site factors. Map any changes in area. This may include mapping areas with different vegetation structures where this would lead to different usage by notified species.

Attribute	Measure	Targets	Comments
# Roost sites	Location of roost sites	Maintain all locations of roost sites.	Map roost site locations. Visit once every reporting cycle to ensure sites are available.

ANNEX II

Feature (ASSI)

* = primary attribute. One failure among primary attribute = unfavourable condition
# = Optional factors – these can be in unfavourable condition without the site being in unfavourable condition

Attribute	Measure	Targets	Comments
Feature			
Coastal saltmarsh			
Goldeneye wintering population	Bird numbers	No significant decrease in population against national trends, caused by on-site factors	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
Great Crested Grebe wintering population	Bird numbers	No significant decrease in population against national trends, caused by on-site factors	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
Red-breasted Merganser wintering population	Bird numbers	No significant decrease in population against national trends, caused by on-site factors	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
Shelduck wintering population	Bird numbers	No significant decrease in population against national trends, caused by on-site factors	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.
Redshank wintering population	Bird numbers	No significant decrease in population against national trends, caused by on-site factors	Five year running averages will be used to monitor population trends through WeBs data. Decline to a level below the Common Standards Monitoring baseline over a five year period may indicate unfavourable condition of the site.

ASSI NAME: The Gobbins

COUNTY: Antrim

LOCAL GOVERNMENT DISTRICT: Larne District Council

IRISH GRID REFERENCE: J484983

AREA: 23.18 ha.

OS MAPS: **1:50,000** 17
1:10,000 71 and 84

DESCRIPTION OF INTEREST:

BIOLOGICAL:

FAUNA: Species: Kittiwake (breeding)
Razorbill (breeding)

HABITAT: Maritime cliff and slope
Intertidal rock

GEOLOGICAL**:** Amygdaloidal basalt containing rare zeolite minerals. Site type locality for 'gobbinsite'

References:

Emeleus, C.H. and Preston, J. 1969. Field excursion guide to the Tertiary volcanic rocks of Ireland. Published by the authors assisted by Queen's University, Belfast. 70pp.

Tschernich, R.W. 1992. Zeolites of the world. Geoscience Press Inc., Phoenix, Arizona.

Mitchell, I.P., Newton, S., Ratcliffe, N. & Dunn, T.E. (2004) *Seabird Populations of Britain and Ireland*. Poyser, London.

Walker, G.P.L. 1960. The amygdale minerals in the Tertiary lavas of Ireland – III. Regional distribution. Mineralogical Magazine, 32, 503-527.

Walker, G.P.L. and Carmichael, I.S.E. 1962A. Garronite, a new zeolite, from Ireland and Iceland. Mineralogical Magazine, 33, 173-186.

DEPARTMENT OF THE ENVIRONMENT

DECLARATION OF AREA OF SPECIAL SCIENTIFIC INTEREST AT THE GOBBINS, COUNTY ANTRIM. ARTICLE 28 OF THE ENVIRONMENT (NORTHERN IRELAND) ORDER 2002.

The Department of the Environment (the Department), having consulted the Council for Nature Conservation and the Countryside and being satisfied that the area delineated and described on the attached map (the area) is of special scientific interest by reason of the flora and fauna and accordingly needs to be specially protected, hereby declares the area to be an area of special scientific interest to be known as the 'The Gobbins Area of Special Scientific Interest'.

The Gobbins cliffs are of importance for their geological interest, breeding seabird colony and a range of maritime plant communities and notable species. The Gobbins is an area of basalt sea-cliffs, up to 60m in height, on the eastern coast of Island Magee, Co. Antrim.

The basalts at Hill's Port at the south end of The Gobbins cliffs are amygdaloidal (bubbles, or vesicles, in lava that have been filled with minerals) and contain various zeolite minerals; analcime, chabazite, cowlesite, gmelinite, gobbinsite, gonnardite, heulandite, levyne and mesolite have been found here. Some vesicles also contain calcite and travertine. Of particular note is the occurrence of gobbinsite and gonnardite; both are restricted in their occurrence elsewhere and the former actually takes its name from The Gobbins cliffs.

At the time of the Seabird 2000 survey The Gobbins held 791 pairs of Kittiwakes (*Rissa tridactyla*) and 552 Razorbills (*Alca torda)* respectively 1.6% and 1.1% of the all-Ireland populations for these species. The site also supports the only mainland nesting Atlantic Puffins (*Fratercula arctica*) in Northern Ireland and significant populations of Fulmar (*Fulmarus glacialis*), Cormorant (*Phalacrocorax carbo*), Shag (*Phalacrocorax aristotelis*) and Common Guillemot (*Uria aalge*). Peregrine Falcons (*Falco peregrinus*) also breed within the designated area.

The Gobbins is also notable for its maritime cliff plant communities. The diversity of these communities is influenced by a number of factors, including exposure to salt spray, soil depth, aspect, slope and degree of water-logging, in addition to nutrient enrichment from breeding sea-birds.

Much of the area consists of steep vertical cliffs, where the vegetation is restricted to rock ledges. Less vertical slopes include occasional scree deposits and tend to have a more continuous vegetation cover.

The most common species over much of the area is the grass Red Fescue *Festuca rubra*, which achieves high cover values. Some of the less steep slopes are dominated by Bracken *Pteridium aquilinum*. Other prominent components in the sward include Thrift *Armeria maritima*, Common Bird's-foot-trefoil *Lotus corniculatus*, Sea Campion *Silene uniflora* and Kidney Vetch *Anthyllis vulneraria*.

To the south of the area, the cliff vegetation is influenced by the presence of the nesting seabirds, which provide enrichment to the soils through their guano. Additional species such as Hogweed *Heracleum sphondylium,* Sea Mayweed *Tripleurospermum maritimum* and Sea Campion *Silene uniflora* occur here.

Notable plant species include Sea Spleenwort *Asplenium marinum*.

The intertidal area is generally rather narrow, and is dominated by bedrock with wave-cut platforms. Most of the site is very exposed with reduced species diversity, but there are some localised pockets of shelter with high fucoid cover (Spiral Wrack *Fucus spiralis* and Toothed Wrack *Fucus serratus*) and Channelled Wrack *Pelvetia canaliculata* is present in the more sheltered areas. The area is characterised by an upper splash zone dominated by the lichen *Verrucaria maura.* Occasional upper shore rock pools contain ephemeral species of green algae, including *Enteromorpha* spp. and *Cladophora* spp and the brown alga *Chorda filum*. Shallow eulittoral rock pools are characterised by the red alga *Corallina officinalis*.

Many of the exposed mid-shore rocks are dominated by the Acorn barnacle *Semibalanus balanoides* and the Common limpet *Patella vulgata* and there is a zone in the lower eulittoral zone dominated by the red algae *Mastocarpus stellatus*. Common invertebrates include the Periwinkles *Littorina* spp., the Dog Whelk *Nucella lapillus* and the Beadlet Anemone *Actina equina*. The brown algae Oarweed *Laminaria digitata*, Dabberlocks *Alaria esculenta*, Thongweed *Himanthalia elongata* and Cuvie *Laminaria hyperborea* typify lower shores.

SCHEDULE

The following operations and activities appear to the Department to be likely to damage the seabird colonies:

1. Any activity or operation which involves the damage or disturbance by any means of the surface and subsurface of the land, including ploughing, rotovating, harrowing, reclamation and extraction of minerals, including sand, gravel and peat.

2. Any change in the present annual pattern and intensity of grazing, including any change in the type of livestock used or in supplementary feeding practice.

3. The application of manure, slurry or artificial fertiliser.

4. The application of herbicides, fungicides or other chemicals deployed to kill any form of wild plant, other than plants listed as being noxious in the Noxious Weeds (Northern Ireland) Order 1977.

5. The storage or dumping, spreading or discharge of any material not specified under paragraph 5 above.

6. The destruction, displacement, removal or cutting of any plant, seed or plant remains, other than for:

    i. plants listed as noxious in the Noxious Weeds (Northern Ireland) Order 1977;

    ii. normal cutting or mowing regimes for which consent is not required under paragraph 3 above.

7. The release into the area of any animal (other than in connection with normal grazing practice) or plant. 'Animal' includes birds, mammals, fish, reptiles, amphibians and invertebrates; 'Plant' includes seed, fruit or spore.

8. Burning.

9. Construction, removal or disturbance of any permanent or temporary structure including building, engineering or other operations.

10. Alteration of natural or man-made features, the clearance of boulders or large stones and grading of rock faces.

11. The killing or taking of any wild animal except where such killing or taking is treated as an exception in Articles 5, 6, 11, 17, 20, 21 and 22 of the Wildlife (Northern Ireland) Order 1985.

12. The following activities undertaken in a manner likely to damage or disturb the wildlife of the area:

    i. Educational activities;

    ii. Research activities;

    iii. Recreational activities;

    iv. Exercising of animals.

13. Changes in game, waterfowl or fisheries management or fishing or hunting practices.

14. Use of vehicles or craft likely to damage or disturb the wildlife of the area.

15. Sampling of rocks, minerals, fossils or any other material forming a part of the site, undertaken in a manner likely to damage the scientific interest.

FOOTNOTES

(a) Please note that consent by the Department to any of the operations or activities listed in the Schedule does not constitute planning permission. Where required, planning permission must be applied for in the usual manner to the Department under Part IV of the Planning (Northern Ireland) Order 1991.

(b) Also note that many of the operations and activities listed in the Schedule are capable of being carried out either on a large scale or in a very small way. While it is impossible to define exactly what is large and what is small, the Department would intend to approach each case in a common sense and practical way. It is very unlikely that small scale operations would give rise for concern and if this was the case the Department would normally give consent, particularly if there is a long history of the operation being undertaken in that precise location.

THE GOBBINS

Views About Management
The Environment (Northern Ireland) Order 2002 Article 28(2)

A statement of Environment and Heritage Service's views about the management of The Gobbins Area of Special Scientific Interest ("the ASSI")

This statement represents the views of Environment and Heritage Service about the management of the ASSI for nature conservation. This statement sets out, in principle, our views on how the area's special conservation interest can be conserved and enhanced. Environment and Heritage Service has a duty to notify the owners and occupiers of the ASSI of its views about the management of the land.

Not all of the management principles will be equally appropriate to all parts of the ASSI and there may be other management activities, additional to our current views, which can be beneficial to the conservation and enhancement of the features of interest. It is also very important to recognise that management may need to change with time.

The management views set out below do not constitute consent for any operation or activity. The written consent of Environment and Heritage Service is still required before carrying out any operation or activity likely to damage the features of special interest (see the Schedule on pages 3 – 4 for a list of these operations and activities). Environment and Heritage Service welcomes consultation with owners, occupiers and users of the ASSI to ensure that the management of this area maintains and enhances the features of interest, and to ensure that all necessary prior consents are obtained.

MANAGEMENT PRINCIPLES

Areas of coastline holding important colonies of breeding seabirds are scarce in Northern Ireland. Environment and Heritage Service would seek to ensure appropriate management of the area for breeding seabirds, together with the geological and the habitat interests.

Seabird colony
The suitability of the site for breeding seabirds is largely dependent on its physical structure. This determines the availability of nest sites and may reduce the vulnerability of nests to predators. It is therefore important that the physical integrity of the site is maintained as far as is possible, taking into account natural processes.

Environment and Heritage Service would encourage the maintenance and enhancement of the seabird colony through sensitive management of the cliff habitat. Disturbance is another consideration with eggs or young birds on ledges being particularly vulnerable to being accidentally dislodged if adults are startled. Disturbance may affect the breeding success of seabirds, particularly those nesting near the top and base of the cliffs. The source of such disturbance can originate both from the land and the sea. Exceptional activities near the top of the cliffs, including particularly noisy activities, should be avoided during the breeding season (April – July) – routine agricultural activities are unlikely to cause problems.

Material dumped over the cliff top also has the potential to destroy adults, eggs and young and can make nest ledges unusable. Activities which could result in the cliff top being destabilized will have a similar impact. Environment and Heritage Service would hope that these activities could be avoided.

Specific objectives for the breeding seabird include:

1. No rock or mineral extraction should be carried out within the site.

2. Do not undertake exceptional activities near the cliff top which could disturb the birds during the breeding season

3. Avoid inappropriate use of heavy machinery or persistent overgrazing which may weaken the underlying structure and cause collapse.

4. Dumping of waste materials over the cliff edge should not take place

Geology

Earth science features such as those at Hill's Port may require occasional management intervention, this to maintain access to, and fresh exposures of, the geology. This could include selectively removing vegetation.

Specific objectives for the earth science interest include:

1. Maintain the geological series in an undamaged state including slipped material.

2. Maintain access to the geological series.

Habitat

Habitat varies from vertical and near-vertical cliff where vegetation is generally limited, to ledges through less steep slopes which support better soils and more extensive vegetation. Habitat is more varied towards the bottom of the cliff series with vegetated scree and sparsely vegetated cobble and boulder beach heads. The intertidal area comprises either intact rock and/or boulder and cobble beaches. The pattern of all these habitats is determined by the angle and competence of the cliff and slopes, natural rock and debris slippage, storm and tidal effects and the distribution of the seabirds and their droppings.

Care should be taken regarding any activities which affect cliff and slope stability and the naturalness of the various vegetation communities.

Specific objectives for the habitat interest include:

1. No rock or mineral extraction should be carried out within the site.

2. Avoid inappropriate use of heavy machinery or persistent overgrazing which may weaken the underlying structure and cause collapse.

3. Dumping of waste materials over the cliff edge should not take place

4. Ensure that disturbance to the site and its wildlife is minimised.

5. Discourage non-native species, especially those that tend to spread at the expense of native wildlife.

Sealed with the Official Seal of the
Department of the Environment
hereunto affixed is authenticated
by

Mr G R Seymour
Senior Officer of the
Department of the Environment

Dated the of 2007